

Senate Hearings

Before the Committee on Appropriations

Y 4. AP 6/2: S. HRG. 104-407

Energy and Water Development Approp...

Energy and Water Development Appropriations

Fiscal Year 1996

104th CONGRESS, FIRST SESSION

H.R. 1905

DEPARTMENT OF THE ARMY
DEPARTMENT OF DEFENSE
DEPARTMENT OF ENERGY
DEPARTMENT OF THE INTERIOR
NONDEPARTMENTAL WITNESSES

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[Errata]

S. HRG. 104-407

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Errata

In the Energy and Water Development Appropriations hearing, following page 354, pages 555 through 558 were inadvertently printed in place of pages 355 through 358. The correct pages follow.

1. DOCUMENT IDENTIFIER (XXX) one:		2. REVISION NO	3. TERMINATION	
SUPPORT AGREEMENT				
2. SUPPLIER (Name, Office Symbol & complete address)		2a. MAJOR COMMAND CODE	2b. SUBORDINATE COMMAND CODE	
US Army Laboratory Command Atmospheric Sciences Laboratory ATTN: DP-2 White Sands Missile Range, NM 88002-5501		W73QKK	W7187J	
GEOGRAPHICAL AREA OR COUNTRY CODE: 35		3. PRESENT AGREEMENT NUMBER	4. TERMINATION DATE (Month and Year)	
		W43P6S-87031-010		
		3a. SUPERSEDED AGREEMENT NUMBER	1-93	
		N/A		
5. RECEIVER (Name, Office Symbol & complete address)		5a. DDDAAC FEDSTRIP NUMBER		
Field Command Defense Nuclear Agency ATTN: FCL Kirtland AFB, NM 87115-5000		HD1102		
GEOGRAPHICAL AREA OR COUNTRY CODE: 35		5b. MAJOR COMMAND CODE	5c. SUBORDINATE COMMAND CODE	
		H02001	HD1102	
6. SUPPORT AGREEMENT RESOURCE SUMMARY				
a. SUPPLIER				
7. CATEGORY CODES	b. MAN YEARS		c. GROSS ADDITIONAL COSTS	
	MILITARY	CIVILIAN	TOTAL	NON-REIMBURSEABLE
AA	0	0	629.37	0
AD	0	0	0	0
AO	0	0	0	0
AS	0	0	2,610.80	0
AW	0	0	0	0
AY	0	0	0	0
BB	0	0	0	0
BC	0	0	0	0
BT	0	0	0	0
BJ	0	0.6	49,818.69	0
BR	0	0	0	0
MF	0	0	0	0
SF	0	0	0	0
SN	0	0	0	0
TOTAL	0.6		53,058.86	0
6a. RECEIVER DATA (when applicable, provide similar data required in blocks 6a, b and c)				
7. SAVINGS ACCRUED/COSTS INCURRED/MAN YEARS SAVED/EXPENDED TO FEDERAL GOVERNMENT				
7a. SAVINGS		7b. COSTS		7c. MAN YEARS SAVED
FY:	FY:	FY:	FY:	FY:
8. FUNDING AND REIMBURSEMENT ARRANGEMENT (Include all details concerning billing/reimbursement procedures, funding limitations, and the appropriate "billing/submit thru" addresses. Also list those releases which specifically apply to the type of organization being supported.)				
Support is provided in accordance with DoD Regulation 4000.19R and applicable DoD Directives. The receiving activity (Field Command, Defense Nuclear Agency, ATTN: FCCF, Kirtland AFB, NM 87115-5000) will issue a reimbursable funding document (MIPR-Military Interdepartmental Purchase Request) to the supplying activity, Atmospheric Sciences Laboratory (ASL), ATTN: SLCAS-DP-F, White Sands Missile Range, NM 88001-5501 for support rendered under this agreement.				
** HQDA MSG - HQDA WASH DC//DALO-RMM// R 141605Z MAR 85, Subject: Logistics Management - Costing of Base Operations Support to USA ASL, Provides ASL with an exemption for costing an alternative means of support.				

CATEGORY OF SUPPORTSUPPLIER SHALLRECEIVER SHALL(II) TEST AND EVALUATION
(Reimbursable)

2b. Submit to the receiver all radio frequencies to be used for voice or data transmission during the conduct of operations of high explosive events. Notify receiver of any radio frequency interference problems.

2b. Identify and resolve radio frequency interference problems. Advise supplier the result of the analysis.

(B.I) WEATHER SERVICE
(Reimbursable)

Demonstrate as required the capability of the Mobile SAMS System through field demonstrations and deployments.

Notify the supplier of any requirement to demonstrate the SAMS capability in sufficient time for the supplier to perform the deployment.

Ia. Provide all weather service requirements to the receiver in accordance with attachments 2 & 3.

Ia. Identify all weather service requirements to the supplier via attachments 2 & 3.

II. Be prepared to assume full capability for all weather service support upon receipt of appropriate notification. (This will be a letter from the receiver identifying requirements.)

II. Schedule, identify, fund and plan for those requirements regarding weather service. These requirements will be provided to the supplier during the planning phase of the high explosive event after MISTY PICTURE. These requirements shall be incorporated into this agreement by reference.

SPECIFIC SUPPORT PROVISIONSCATEGORY OF SUPPORTSUPPLIER SHALLRECEIVER SHALL(AA) COMPUTER AND DATA
PROCESSING (Reimbursable)

Provide computer generated meteorological data from the Surface Atmospheric Measurement System (SAMS) in the formats specified by the receiver. This data shall be on magnetic media with a hard copy backup.

Provide supplier the required Automated Data Processing (ADP) formats.

(AD) LEGAL SERVICES
(Nonreimbursable)

Review all claims against the government for technical validity based on atmospheric conditions at time zero that affect blast wave propagation and focusing. Provide copies of claims to receiver.

No requirement. (NOTE: All claims against the government for alleged damages are filed with the WSMR Staff Judge Advocate.)

(AO) TRANSPORTATION
(Nonreimbursable)

Provide transportation for SAMS personnel and equipment to/from the PIETS site.

Identify those specific times that the supplier shall be at the PIETS site. Provide siting direction and space for operation.

(AS) CALIBRATION OF
PRECISION MEASURING
EQUIPMENT
(Reimbursable)

Inspect, maintain, repair, calibrate and certify all precision measuring equipment (PME) as per established standards.

Notify the supplier of any PME that is known to be performing out of established standards.

SUBJECT: Technical Weather Support for Large Scale High Explosive Testing at WSMR

Atmospheric Sciences Laboratory
ATTN: AT-WS (Gordon Dunaway)
US Army Laboratory Command
White Sands Missile Range, NM 88002-5501

1. PURPOSE: This letter identifies all actions of a technical nature which must be taken by the Atmospheric Sciences Laboratory (ASL) to ensure that the weather observation and prediction system employed in support of the PCDNA High Explosive Test Staff is accurate, coordinated and responsive.

In general the technical support requirements contained in this document are applicable to all medium and large scale high explosive (HE) test events. However, certain functions will not be accomplished by ASL during the FY87 event, MISTY PICTURE. These tasks will be performed by Sandia National Laboratory, Albuquerque (SNLA) due to the fact that they have a vast amount of experience in

these areas. The ultimate goal is to have ASL assume responsibility for all of these tasks for the next major HE event currently scheduled for FY89. This assumption will require training in the area of atmospheric conditions which contribute to blast wave propagation and focusing as well as the use of monitoring systems and techniques used to predict them.

During the time periods when no large scale HE tests are to be conducted, there exists a continuing requirement to record and characterize the lower atmosphere at the Permanent High Explosive Test Site (PHETS). These tasks, as well as the specific tasks related to an event are contained herein.

2. BACKGROUND: Experience gained during atmospheric nuclear testing showed that explosions of a few kilotons yield could break windows and otherwise disturb the civilian population up to 200 kilometers distant. Medium and large scale high explosive testing has extended this observation in that DIRECT COURSE broke two windows at Stallion Range Center at 20 kilometers and MINOR SCALE broke several windows in Carrizozo at 60 kilometers range. This distant airblast propagation depends on weather conditions (temperature and winds) as high as 50 kilometers in altitude.

<u>CATEGORY OF SUPPORT</u>	<u>SUPPLIER SHALL</u>	<u>RECEIVER SHALL</u>
(BC) COMMUNICATION SERVICES (Nonreimbursable)		
1. Common-User Telecommunications Services (Nonreimbursable)	1a. Submit common-user telecommunications requirements to the receiver. a. Advise receiver of number and type of administrative telephone instruments and lines required. b. Advise receiver of requirement for AUTOVON service. c. Advise receiver of requirement for FTS service. 1b. Comply with the Comm Plan supplied by the receiver. 1c. Comply with receiver provided regulations regarding their use of hand held portable radios.	1a. Provide common-user telecommunications services as requested to include: a. Provide administrative telephone service not to include toll charges. Collect calls will not be accepted. b. Provide required AUTOVON Service. c. Provide required FTS service. 1b. Provide a Comm plan for use during field operations high explosive events. 1c. Provide hand held portable radios and instructions for their use.
2. Dedicated Telecommunications Services (Reimbursable)	2a. Submit all requirements to receiver for distribution of meteorological data to all sites defined in attachments 2 & 3.	2a. Identify and fund for those requirements to distribute meteorological data to the sites specified in attachments 2 & 3.

SUBJECT: Technical Weather Support for Large Scale High Explosive Testing at WSMR

As an adjunct high explosive testing, in order to simulate the thermal environment produced by a nuclear detonation, must field experiments sensitive to surface winds and localized wind vortices (dust devils). This leads to the requirement for an extensive and accurate wind monitoring and prediction capability.

3. TECHNICAL SUPPORT REQUIREMENTS: The following requirements are to be jointly provided by ASL and SNLA. Each requirement is identified as to which agency supplies the service for MISTY PICTURE. For all future HE events ASL will perform all meteorological services.

a. Objectives.

(1) Provide predictions to the Technical Director (TD) and Test Group Director (TGD) of airblast propagations, based on measured meteorological conditions, to minimize off-site nuisance damage and hazard.

(2) Provide micrometeorological data for correlation with close in behavior of the blast wave and debris cloud.

(3) Obtain microbarograph (MB) measurements of the blast wave at several on-site and off-site locations to verify predictions and provide objective bases for evaluating any damage or damage claims.

(4) Correlate MB measurements in the 200 kilometer radius noise ring with rocketsonde observations of upper atmospheric conditions near 50 kilometers altitude in light of finite amplitude propagation models.

(5) Provide general meteorological consultation to the TGD and TD for planning and count-down decision making.

b. Operations.

(1) Blast Predictions. Obtain radiosonde temperature and wind data at T-6, T-3, shot time and T+3 hour. Using this data, calculate sound velocity versus height in various critical directions (i.e., population centers) to determine whether enhanced airblast propagation will occur in these directions. Provide the results and recommendations to the Test Director for his consideration in making the final firing decision. The calculations and the report to the Test Director will be provided by SNLA during MISTY PICTURE. ASL shall assist in preparations of the report and calculations.

(2) Weather Advisories.

(a) Provide the SNLA meteorologist with access to all meteorological data available at 'C' Station.

(b) Provide a meteorologist by D-IO for consultation.

CATEGORY OF SUPPORT

SUPPLIER SHALL

RECEIVER SHALL

(BR) TRAINING
(Nonreimbursable)

1a. Ensure all personnel who participate in the field operations are adequately trained in the use, operation and maintenance of all equipment.

1a. No requirement. Reserve the right to check the quality of training.

1b. Identify those individuals who will require specialized training in the areas of blast wave focusing and propagation.

1b. Provide appropriate specialized training to individuals identified by supplier.

(SF)(MF) COMMUNICATION
EQUIPMENT AND COMPONENTS

1. Supplier owned
(Nonreimbursable)

1. Supply, maintain and repair all communication devices peculiar to the fixed and mobile SAMS, Acquisition Control Units and Data Collection Points and their components.

1. Notify supplier of any known shortages or failures of fixed or mobile SAMS peculiar communications equipment in order that they can be repaired or replaced.

2. Receiver owned
(Nonreimbursable)

2. Operate in accordance with receiver provided instructions communications equipment provided by the receiver. Notify receiver of any communications equipment failures so that they may be repaired or replaced.

2. Provide those communications devices, operating procedures and repair facilities to maintain effective communications.

(SN) HOUSING AND OFFICE
APPLIANCES, EQUIPMENT AND
FURNITURE

Be financially responsible for damages beyond normal wear and tear to government-owned office equipment.

Provide, as available, normal government-owned office equipment.

SUBJECT: Technical Weather Support for Large Scale High Explosive Testing at WSMR

6. These requirements should be used as a basis for a cost estimate. If there are any questions, the FCDNA POC is Lt Ken Fladager Comm/FTS (505) 844-4602 or Autovon 244-4602.

Charles G. Walls

CHARLES G. WALLS
MAJ, USA
Test Group Director,
MISTY PICTURE

**ENERGY AND WATER DEVELOPMENT
APPROPRIATIONS FOR FISCAL YEAR 1996**

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE
ONE HUNDRED FOURTH CONGRESS

FIRST SESSION

ON

H.R. 1905

AN ACT MAKING APPROPRIATIONS FOR ENERGY AND WATER DEVELOPMENT FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1996, AND FOR OTHER PURPOSES

**Department of the Army
Department of Defense
Department of Energy
Department of the Interior
Nondepartmental witnesses**

Printed for the use of the Committee on Appropriations



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CONTENTS

WEDNESDAY, MARCH 1, 1995

	Page
Department of Energy	1

TUESDAY, MARCH 14, 1995

Department of Energy: Office of Energy Research	95
---	----

MONDAY, APRIL 3, 1995

Department of Energy: Kirtland AFB, NM, realignment	261
Department of Defense: Defense Nuclear Agency	293

TUESDAY, MAY 2, 1995

Department of Defense—Civil: Department of the Army: Corps of Engineers— Civil	371
Department of the Interior: Bureau of Reclamation	503

NONDEPARTMENTAL WITNESSES

Northeast water resource development projects	572
Southeast and lower Mississippi River water resource development projects ...	671
Upper Midwest water resources projects	791
Southwest water resource development projects	853
Pacific Northwest water resource development projects	939
California water resource development projects	972
Energy research programs	1164

(III)

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 1996

WEDNESDAY, MARCH 1, 1995

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 9:39 a.m., in room SD-116, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici and Reid.

DEPARTMENT OF ENERGY

STATEMENT OF VICTOR H. REIS, ASSISTANT SECRETARY FOR DEFENSE PROGRAMS

ACCOMPANIED BY:

HAROLD P. SMITH, JR., ASSISTANT TO THE SECRETARY OF DEFENSE FOR ATOMIC ENERGY, DEPARTMENT OF DEFENSE

KENNETH E. BAKER, ACTING DIRECTOR, OFFICE OF NON-PROLIFERATION AND NATIONAL SECURITY

KENNETH N. LUONGO, DIRECTOR, OFFICE OF ARMS CONTROL AND NONPROLIFERATION

OPENING STATEMENT OF SENATOR DOMENICI

Senator DOMENICI. The subcommittee will please come to order.

First, I want to express how pleased I am to be chairing this subcommittee. I look forward to working with you and the Department of Energy on a continuing basis. We will review today the President's fiscal year 1996 budget proposal for atomic energy defense activities of the Department of Energy. There will be some changes recommended in the overall budget, and obviously some changes that Congress will want to make. Most of those, I assume, will be made in this Appropriations Subcommittee as it pertains to these important activities. Although we are looking anxiously at some major reform at the national laboratories, I am not at all sure that will occur soon enough to be reflected in this year's appropriations process.

I want to express my gratitude to Senator Bennett Johnston, ranking Democratic member, who will be working with me on this bill. We are pleased that he has such a grasp and such a concern about the defense and energy programs over which this subcommittee has jurisdiction. The schedule this morning is uncertain—we may be called down to the floor in 20 minutes, and that may require some adjustments to how we proceed. I just cannot tell.

So without objection, I am going to put my full statement in the record, and proceed.

[The statement follows:]

PREPARED STATEMENT OF PETE V. DOMENICI

The hearing will come to order.

The purpose of this morning's hearing is to review the fiscal year 1996 budget request of the Department of Energy's defense programs.

This is the first regular subcommittee hearing and the first chance for me, as the new subcommittee chairman, to thank Senator Hatfield for his support and help over the years. It is indeed an honor to follow in Senator Hatfield's steps as chairman of this subcommittee. I would also like to say that Senator Johnston and I have worked closely on many issues over the years, and I look forward to our continued association here on the Energy and Water Development Subcommittee, as Chairman and Ranking member. I plan to continue to work cooperatively with him on the many important issues that will face us in the coming year.

I would also like to take the opportunity to recognize and welcome the three new subcommittee members: Senator Bennett of Utah, Senator Burns of Montana, and Senator Murray of Washington. They will provide a new perspective to our work and their input will be invaluable.

The programs and projects under the subcommittee's jurisdiction are some of the most important in the entire Federal government. They range from providing navigation and flood protection benefits, to supporting the national security through maintaining the nuclear deterrent.

However, the programs we review this morning, the Atomic Energy Defense Programs of the Department of Energy are, in my view, paramount to the future of the Nation. The budget before us supports the scientific and technical underpinning which is so vital to our future competitiveness, in addition to providing for the national security.

The overall budget request for Defense Programs appears to be good, \$3.5 billion, an increase of \$300 million (9 percent) over fiscal year 1995. But just as important as dollars, is the focus on the key scientific and technical areas critical to support the enduring nuclear stockpile.

We meet this morning in open session to receive testimony from DOE supporting its fiscal year 1996 budget request for Atomic Energy Defense Activities. I'd like to introduce Dr. Victor Reis, Assistant Secretary for Defense Programs, Department of Energy; Dr. Harold Smith, Assistant to the Secretary of Defense for Atomic Energy; and Kenneth Baker, Acting Director, Office of Nonproliferation and National Security, Department of Energy.

Gentlemen, we have your detailed prepared statements which I ask be included in the record in full. So, if you would highlight and summarize for the Committee it would help.

If it is OK with the subcommittee I propose we hear the summary statements of the three witnesses after which we'll open it up for questions.

Senator DOMENICI. I am very pleased to have Dr. Vic Reis, representing DOE, and Dr. Harold Smith, representing the Department of Defense. We also are glad to have Ken Baker here as well. I want to compliment you in particular, Dr. Reis, because I think some very dramatic things are happening with reference to the weapons activities vis-a-vis the national laboratories. For the first time in a long time I look with enthusiasm in trying to carry out the current approach that the Department of Energy has come upon with reference to the laboratories and maintaining a safe, reliable, and modernized nuclear arsenal.

Vic, would you please proceed?

STATEMENT OF VICTOR H. REIS

Dr. REIS. Certainly. With your permission, I will just read a brief statement, and will enter my detailed testimony in the record.

Senator DOMENICI. Please, proceed.

DEFENSE PROGRAMS—OVERVIEW

Dr. REIS. Mr. Chairman, the President's budget request for defense programs for fiscal year 1996 is \$3.5 billion. This is an increase of 8 percent over the equivalent fiscal year 1995 appropriation. This is a large increase in a tough fiscal climate, and it is the first request for an increase in 4 years. But the significance of this budget request is not its dollars, but its heading. It represents a fundamental change in the direction of defense programs. Let me highlight some of these changes.

WEAPONS REDUCTION

Since the end of the cold war, we have reduced the number of nuclear weapons in the active stockpile by 59 percent, and by the year 2003 by 79 percent. We have ceased production of new nuclear weapons. Accordingly, we have turned over most of the production plants—Hanford, Rocky Flats, ID, K-25 at Oak Ridge, Mound and Pinellas—to the Office of Environmental Management. This year, we continue that process by transferring the Savannah River site.

Reducing the number of nuclear weapons has required defense programs to dismantle a large number of warheads, and we will continue dismantlements at the maximum safe rate in fiscal year 1996. These reductions were part of the defense programs response to ending the cold war. Now, we must define the role of nuclear weapons in the future, and the character of the nuclear weapons stockpile.

NUCLEAR DETERRENCE

President Clinton has stated that the continued maintenance of a safe and reliable U.S. nuclear deterrent is the cornerstone of U.S. national security policy, and as part of this commitment to achieving a comprehensive test ban, he has directed the Department of Energy to explore means of maintaining our confidence in the safety, reliability, and performance of our nuclear weapons without nuclear testing. This was codified by the Congress in the Fiscal Year 1994 National Defense Authorization Act, and underscored by the Department of Defense's nuclear posture review.

In other words, defense programs must deliver a high confidence, affordable, reliable, safe, and secure enduring stockpile of sufficient size and scope to ensure deterrence, while simultaneously supporting U.S. arms control and nonproliferation policy. Because the stockpile must endure, we require a production complex to replace the stockpile when needed, including limited life components and tritium. And because the world is uncertain, we need the ability to reconstitute our test and production capabilities.

SCIENCE-BASED STOCKPILE STEWARDSHIP

The President has challenged the weapons community with an extraordinarily difficult and demanding task. To ensure weapons confidence, we must develop a deeper scientific understanding of weapons and weapons physics, and we must keep an active cadre of world-class scientists doing world-class science. We must significantly enhance our stockpile surveillance capability, and we must learn how to remanufacture weapons and components with a small-

er and more agile complex. To meet this challenge, we have embarked on a new program, science-based stockpile stewardship, and we will rely principally on the three national laboratories—Los Alamos, Livermore, and Sandia—for its implementation. The fiscal year 1996 budget request begins this task.

Some programs, such as supplying limited life components for the active stockpile, remain relatively unchanged. Other programs, such as our Technology Transfer Program, will be realigned to the new mission. But there are a number of new programs in the fiscal year 1996 budget that specifically respond to the President's challenge. I'd like to mention just a few of them.

NATIONAL IGNITION FACILITY

The first is the national ignition facility [NIF], announced by Secretary O'Leary last October. When completed, the NIF will be the world's largest laser, and will create conditions normally found only inside stars and the explosions of nuclear bombs. The NIF builds upon Lawrence Livermore's world leadership in lasers, weapons physics, astrophysics, and inertial confinement fusion. We anticipate that much of the research at NIF will be unclassified, and will involve a broad scientific community.

ACCELERATED STRATEGIC COMPUTING INITIATIVE

The ability to provide an accurate three-dimensional picture of a nuclear explosion is crucial to ensure stockpile confidence without testing. We propose to enter into technology partnerships with the leaders of the supercomputing industry, to increase both effective computer speed and storage by a factor of over 1,000 during the next decade, and to create the supporting software and infrastructure to ensure credible, confident nuclear explosion simulations.

LOS ALAMOS NEUTRON SCATTERING CENTER

Since we hope to use our current weapons beyond their design lives, we must apply the best scientific tools available to increase our detailed knowledge of the aging processes that go on within nuclear weapons. For more than 40 years, neutron scattering has played a major role in the studies of condensed matter. This technique will be used to study the nuclear weapon aging process at the Los Alamos Neutron Scattering Center, which is one of the finest facilities in the world. In fiscal year 1996, we shall begin to diagnose weapons materials with neutron techniques.

TRITIUM SUPPLY

Finally, the fiscal year 1996 budget also contains funds for a new source of tritium. All of the weapons in the enduring stockpile use small amounts of the gas tritium, the radioactive isotope of hydrogen. Because tritium decays—approximately 5 percent is lost every year—it must be resupplied. The United States has not produced tritium since 1988, and has relied upon tritium from dismantled weapons to keep the active weapons supplied. Tritium from this process will last only until 2011, so it is essential that we begin the project to provide for a new tritium source now.

SUMMARY

Mr. Chairman, this represents some of the highlights of the fiscal year 1996 defense programs budget request. It is different than any of its predecessors, but these are very different times. This request recognizes the underlying need for maintaining nuclear strength, while we seek to reduce the global nuclear danger. In these times of severe financial stress and international turbulence, I think it is a good idea to remind ourselves why we need nuclear weapons at all. Let me just quote from the British military historian John Keegan reflecting on the D-Day invasion.

"We can see now that nuclear weapons are the ultimate factor determining whether anything like a D-Day invasion would ever happen again. Nuclear weapons have transformed the relationships between States for good. D-Day was necessary only because conventional weapons were insufficient to deter a megalomaniac from attacking all his neighbors or to prevent him from conquering a whole continent. No megalomaniac, unless he wills his own destruction, can set out on the course that Hitler took. Anything like D-Day is, therefore, an unnecessary conception of the world of the present and of the future."

PREPARED STATEMENT

I think Professor Keegan gets it about right. I look forward to working with the committee, Mr. Chairman, and I am prepared to answer any questions that you might have.

[The statement follows:]

PREPARED STATEMENT OF DR. VICTOR H. REIS

INTRODUCTION

Good morning Mr. Chairman and members of the committee. My name is Victor H. Reis and I am Assistant Secretary of Energy for Defense Programs. My testimony today will support our fiscal year 1996 Defense Programs budget request. We are requesting \$3.5 billion to provide a safe and reliable enduring nuclear weapons stockpile in the absence of underground nuclear testing.

OVERVIEW

America's security demands a continuing investment in our defense. Nuclear deterrence, an essential part of that investment, has paid extraordinary dividends over the last 45 years. It is an investment that we cannot afford to neglect because of the nuclear dangers we continue to face. As President Clinton stated "we will retain strategic nuclear forces sufficient to deter any future hostile foreign leadership with access to strategic nuclear forces from acting against our vital interests and to convince it that seeking a nuclear advantage would be futile. Therefore, we will continue to maintain nuclear forces of sufficient size and capability to hold at risk a broad range of assets valued by such political and military leaders."

The U.S. nuclear weapons stockpile is undergoing dramatic changes as this Nation has taken steps to reduce the global nuclear danger. Thanks to unprecedented arms control agreements between the United States and the former Soviet Union, nuclear forces are being dramatically reduced. Implementation of the START I and START II protocols will result in a total U.S. nuclear weapons reduction of 79 percent by the year 2003. The United States has halted the development and production of new nuclear weapons, and has begun closing portions of the weapons complex no longer needed to support the significantly smaller, less diverse stockpile of the future. But the United States still has a duty and obligation to ensure the safety, security, and reliability of the enduring nuclear weapons stockpile. I think that you will agree that the task before the Department of Energy and its laboratories is extraordinarily difficult even in this world of fewer nuclear weapons.

In the past, our confidence in the stockpile was ensured through weapon research and development in the laboratories and underground nuclear testing at the Nevada Test Site. In July 1993, the President announced a moratorium on underground nuclear testing that has now been extended until September 1996. No U.S. tests have been conducted since October 1992. The President has challenged the Department

"to explore other means of maintaining our confidence in the safety, reliability and performance of our own weapons." The President also directed that "the plan include stockpile surveillance; experimental research, development and engineering programs; and the maintenance of a production capability to support these efforts." This challenge was codified when the Congress passed the fiscal year 1994 National Defense Authorization Act that directed the Secretary of Energy "to establish a stewardship program to ensure the preservation of the core intellectual and technical competencies of the United States in nuclear weapons." It was also substantiated in the Department of Defense's Nuclear Posture Review, completed in October 1994.

These directives, coupled with extremely tight budgets for the foreseeable future, define the future for Defense Programs and thus shape the new, post Cold War program. Defense Programs is charged to deliver:

- A high confidence, affordable, reliable, safe and secure enduring stockpile of sufficient size and scope to ensure deterrence, while simultaneously supporting U.S. arms control and non-proliferation policy. Because the stockpile must endure, we require
- A smaller, more cost-effective production complex to replace the stockpile when needed, including limited life components and tritium. And because the world is uncertain, we need the
- Ability to reconstitute test and production capability.

The science and technology base, which is primarily resident in the three weapons laboratories; Lawrence Livermore, Los Alamos, and Sandia National Laboratories, is the key to delivering these products. Because the health of the weapons and the vitality of the weapons laboratories are highly correlated, maintaining laboratory competence in all aspects of nuclear weapons is one of Defense Programs' highest priorities.

The current stockpile is safe, secure, and reliable. However the history of the stockpile has shown that continuous surveillance, repair, and replacement of components and subsystems is commonplace. In fact, the seven weapons that will be in the enduring START II stockpile have already been retrofitted to varying degrees and some have had major components of the nuclear system replaced. Of the weapons types introduced since 1970, nearly one-half have required post-development nuclear testing to verify, resolve or fix problems related to safety or reliability. We cannot predict with any certainty when such problems will arise in the future, but we expect that as the stockpile ages beyond its intended lifetime, these types of problems will become more commonplace.

The program, at its most fundamental level, will provide the capability to respond to any problem concerning the safety or reliability of the stockpile in a timely manner by maintaining the necessary skill and judgment bases. At the core, the program will focus on: monitoring the stockpile; evaluating problems; repairing, modifying, certifying, and recertifying safety and component performance; as well as full system performance and providing for future manufacturing options. We must develop a new approach that does not rely on nuclear testing to ensure our long-term confidence in the safety, security and reliability of the stockpile. This approach will include a revalidation strategy that allows for the continued certification of the safety, security, and reliability of the stockpile through the requalification of weapons components or certifying rebuilt components. The program will require the upgrade of existing facilities and construction of some new facilities that have applications in scientific research, in strengthening the scientific understanding of the weapons physics, and in the maintenance of material and component supply bases.

Basic to the program is the need for improved scientific understanding of age-related changes that might affect system safety or performance, and the ability to respond to new requirements. Improved understanding of warhead behavior over time will be obtained from computer simulations and analyses benchmarked against past data and new, more comprehensive diagnostic information obtained from appropriate laboratory experiments. An improved scientific understanding of the behavior of nuclear weapons will allow our scientists and engineers to have a better basis for anticipating, identifying and solving new problems or to remedy defects that may occur in the enduring stockpile as it ages. This approach will allow the United States to maintain confidence in the stockpile during a nuclear test ban, in a manner consistent with our non-proliferation objectives and arms control commitments.

Another basic principle is the need to cost effectively maintain a limited capability to manufacture nuclear weapons even though no new weapons are being produced and some production facilities are being closed. This will require a fundamental restructuring of our engineering and production practices.

Implementing these principles will transform the nuclear weapons complex from capacity-based to capability-based. The new enterprise will rely more on scientific

understanding and manufacturing agility than test empiricism and manufacturing capacity. The weapons laboratories must assume more responsibility for production capability in addition to their responsibilities for scientific understanding. Having a capability of creating a larger stockpile in an emergency could permit the U.S. to further reduce its active stockpile if international conditions so warrant.

To reach the program envisioned, and be consistent with congressional direction, the Department has restructured the weapons activities account into two closely related and interdependent programs—Stockpile Stewardship and Stockpile Management.

STOCKPILE STEWARDSHIP

The Stockpile Stewardship program will provide scientific and technical support and the knowledge base for management of the stockpile. Specifically, the program must: (1) develop the means to ensure confidence in the safety and performance of the stockpile without testing; (2) maintain the safety, security, reliability of the stockpile and ensure the capability to replace weapons and weapons components in a timely and cost-effective manner; (3) maintain the nuclear weapons knowledge and skill bases at the three weapons laboratories; (4) provide a sufficient scientific understanding of the principles that underpin the safety and performance of nuclear weapons; (5) fill critical gaps in knowledge about age-related changes that might affect weapons system safety, reliability or performance; and (6) ensure the capability to resume nuclear testing and enlarge the stockpile if directed to do so by the President.

To meet the objectives of the Stockpile Stewardship program we have identified three major new initiatives for fiscal year 1996.

(1) *New experimental facilities and advanced hydrodynamic testing capabilities.*—These new facilities and capabilities would improve our understanding of the underlying physics of nuclear weapons, acquire new data and add it to existing data bases, and test and evaluate computer modeling that will provide the future basis for ensuring safety, reliability, and performance of nuclear components. The most important new facility is the National Ignition Facility [NIF].

The NIF will simulate, on a very small scale, the extraordinary temperatures and pressures that occur during the detonation of a nuclear weapon. NIF will have 192 laser beams which will produce about 500 trillion watts of energy for 3 billionths of a second. The light from the laser beams will be focused onto a tiny target, about the size of a ball bearing, filled with isotopes of hydrogen. The laser light will compress to pressures greater than 100 billion times earth's atmosphere and heat to temperatures of 100 million degrees the hydrogen isotopes to produce fusion reactions. Understanding and controlling fusion in NIF's laboratory setting will greatly enhance our studies of the physics of nuclear weapons by verifying predictions of extremely complex computer models. NIF will help us improve our ability to evaluate problems in the secondaries, make the necessary repairs/modifications and subsequently evaluate and recertify those nuclear components. The challenges and research opportunities will make the NIF a powerful draw for world-class scientists and engineers, thus helping ensure that the Nation's continuing national security challenges will be addressed by experts second to none.

Last year the Secretary approved Key Decision-1 [KD-1] for the NIF project. As a result of that decision, the fiscal year 1996 budget requests a total of \$61 million for Title I design activities and related operating expenses. The Secretary also established a new project milestone, KD-1 Prime. The principal focus of the new milestone will be to resolve the issue of whether or not the NIF will aid or hinder U.S. nonproliferation objectives. The Secretary is expected to make a KD-1 Prime decision this summer.

Advanced Hydrodynamic Testing Capabilities provide the closest non-nuclear simulation of the operation of the primary in a nuclear weapon. The primary is one of the most crucial, and complex parts of every nuclear weapon. Its properties are central to safety as well as reliability and performance. If the primary does not work, nothing nuclear happens. If the primary's yield is too low the secondary will not perform. Advanced hydrodynamic experiments capabilities are crucial to resolve issues associated with weapons safety and aging and can provide benchmarks for computer code calibration. One alternative for meeting our testing requirements is the Dual-Axis Radiographic Hydrodynamic Test Facility [DARHT], under consideration at Los Alamos. The construction of the DARHT has been halted by court action and may be resumed upon completion of an environmental impact statement and the issuance of a record of decision by the Department. Funding of \$16 million is included in the fiscal year 1996 budget for advanced hydrodynamic testing capabilities.

(2) *Revolutionary improvements in computer capabilities.*—This challenge will be met through the Accelerated Strategic Computing Initiative [ASCI]. The fiscal year 1996 budget includes \$45 million to support this initiative. Without underground testing, numerical simulation and computer modeling will be the principal means of recertifying the safety and performance of nuclear primaries and secondaries, predicting full-system behavior, and validating reliability. This initiative will create the leading-edge computational modeling and simulation capabilities critically needed to promptly shift from nuclear test-based methods to computational-based methods for assuring the safety, reliability and performance of the stockpile. Computer models of manufacturing processes are also needed to ensure highly reliable component production in small lots and the ability to make replacement components to original specifications for the foreseeable future.

Thousand fold increases in computer speed and data storage capacity are needed. Moreover, new computer software for weapons analysis, referred to as weapon codes, must also be developed to incorporate 3-dimensional geometries, provide higher spatial resolution in critical areas, and eliminate empirical calibrating factors. Increased capabilities are required so that critical data from previous nuclear tests, design and production activities and skills from retiring scientists and engineers can be archived for future use by weapons experts.

The formidable computing requirements of ASCI will drive a move to what is called "massively parallel processing". Massively parallel processing is a revolutionary advance in computer technology that will allow the power of thousands of computers to be simultaneously focused on solving a single problem. Massively parallel computing technology is maturing rapidly. Yet, today's weapons application codes do not exploit this technology. Revising them or developing newer, faster, more capable, and fully validated parallel processing weapons codes will require years of sustained research and development. ASCI will also require that trained scientists and engineers be given access to the latest information management systems, weapons data banks, data storage systems, networks and graphics systems for analyzing and interpreting virtual tests and computer simulations.

(3) *New stockpile surveillance capabilities.*—With the smaller, aging, less diverse stockpile of the future, these capabilities are essential. We will develop ways to prevent common-mode failure that could jeopardize a significant portion of the stockpile. We must measure the degradation of safety and reliability as weapons age beyond their design lifetime and beyond our experience. The effects of aging include cracks and voids in heavy metals and high explosives; stress and failures in welded parts; and surface bonding problems. Nondestructive testing techniques must be developed so that examination of weapons components can be made. A high priority initiative for stockpile surveillance is advanced noninvasive imaging by using x-rays or neutrons to examine the internal components of nuclear weapons without disassembly. The fiscal year 1996 budget includes \$25 million for conducting this activity at the Los Alamos Neutron Scattering Center [LANSCE], at the Los Alamos Meson Physics Facility.

LANSCE will allow our weapons scientists and engineers to develop a scientific understanding of the aging of plutonium and high explosives, and the materials and manufacturing issues associated with rebuilds or modifications to the stockpile. It will also provide the capability to detect problems in warheads without having to disassemble them.

Testing

President Clinton has instructed the Department of Energy to maintain, as a contingency, the capability to resume underground testing. Our fiscal year 1996 budget includes \$206 million, a decrease of \$11 million from fiscal year 1995 (as adjusted), to provide for this requirement. Ongoing and planned non-nuclear experiments in support of stockpile stewardship and other programs will provide the necessary technical expertise to resume underground testing if so directed by the President. In addition, there are no plans to conduct hydronuclear experiments during fiscal year 1996 unless directed by the President.

As an example of the kinds of activities conducted to maintain the technical expertise, the Department plans to conduct the Kismet experiment today. The experiment is composed of a high explosives package of about 50 pounds of TNT containing an inert heavy metal material. The principle question to be answered by the experiment is how the aerosolized material will migrate into the surrounding soil material. Various diagnostics will be used to determine the pressures and temperatures achieved during the high explosives detonation and burn. The information gained will test our ability to insure containment, if experiments containing special nuclear material are conducted at the test site.

STOCKPILE MANAGEMENT

The most important new activity within the Stockpile Management program is initiation of work on a new tritium production source. An integral part of ensuring confidence in the stockpile is providing an adequate supply of tritium, a radioactive gas used in all U.S. nuclear weapons. Tritium greatly increases the explosive force of the warhead. Tritium however has a radioactive half life of 12 years, and must be replenished periodically in order for the weapons to work as designed. The United States has not produced any tritium since 1988, and currently has no production source for this important material. Based on a stockpile consistent with the START II agreement, the United States will need to have new tritium by about 2011 in order to meet requirements, including the need for a 5 year reserve supply. During the interim the United States will rely on tritium recycling to meet our requirements.

Based on changes in stockpile requirements, budget constraints and public comment, the Department announced October 28, 1994, that it would separate the Re-configuration Programmatic Environmental Impact Statements [PEIS] into two PEISs: a Tritium Supply and Recycling PEIS and a Stockpile Stewardship and Management PEIS. The Department is now proceeding with the Tritium Supply and Recycling PEIS while developing the framework and alternatives to be studied in the Stockpile Stewardship and Management PEIS. The PEIS analyzes four different technologies for a new facility: Accelerator Production of Tritium [APT], an Advanced Light Water Reactor [ALWR], a Heavy Water Reactor [HWR], and a Modular High Temperature Gas-Cooled Reactor [MHTGR]. All four new tritium supply technologies, as well as existing reactors, will be capable of meeting the 2011 date for new tritium and all could meet the required quantities. The candidate sites under consideration for the new tritium facility include: the Idaho National Engineering Laboratory, the Nevada Test Site, the Oak Ridge Reservation, the Pantex Plant and the Savannah River Site. The draft PEIS has been published for public review and comment. The PEIS includes an analysis of the so-called triple play reactor—a reactor that can produce tritium and generate electricity while “burning” plutonium. The PEIS also discusses the environmental impacts of using an existing commercial reactor to make tritium, whether as a contingency in the event of a national emergency or should the Department choose to purchase such a reactor and convert it to defense purposes. The Department will hold public hearings in Washington, D.C. and at potentially affected sites in April, and will issue a final PEIS in October 1995. A Record of Decision is expected in November 1995.

The Stockpile Management program is also responsible for the hands on, day-to-day functions and operations involved in maintaining the enduring nuclear weapons stockpile. The core activities of this program include production of operational spares, logistic spares, quality assurance and reliability testing, and weapon repair, retrofit, modifications and conversions. In this regard, reuse and requalification of components, especially nuclear components will be one of the ways explored to reduce program costs. The Stockpile Management program is also responsible for the transport and storage of nuclear weapons and nuclear materials and for the dismantlement of retired weapons and safe storage or disposal of the resulting materials. Consistent with our commitment to the Department of Defense to support the stockpile of nuclear weapons, the fiscal year 1996 budget request will allow us to deliver the following products and services: conducting 100 destructive and non-destructive tests of weapons components; delivering 711 limited life component kits to the Department of Defense, and filling and replacing 1,000 tritium reservoirs; and dismantling nuclear warheads. The program provides support for the military on routine field maintenance operations as well as radiological/nuclear accident response capabilities. These functions must be provided as long as the United States relies on nuclear weapons for deterrence. In carrying out these functions the Stockpile Management program depends upon the Stockpile Stewardship program for technical support in all aspects of its work.

Dismantlement is another important activity within the Stockpile Management account. Since the end of World War II, the Department and its predecessors have disassembled some 50,000 nuclear warheads in a safe, secure, and efficient manner. Since the beginning of the current fiscal year we have dismantled 632 warheads, and expect to complete about 1,400 total for fiscal year 1995. In fiscal year 1996, Defense Programs will continue the safe dismantlement of approximately 2,070 nuclear warheads at the Pantex Plant. Unlike the mission workload at most other weapons complex sites, the Pantex workload is expected to remain stable for the next several years as we reduce the START II nuclear stockpile. Disassembly (like assembly) of a nuclear device is a very exacting procedure and is conducted in a controlled environment under strict supervision. Following disassembly, the

plutonium and uranium components must be retained in controlled storage or configured in a transparent condition for arms control and nonproliferation purposes.

Another activity carried out in Stockpile Management is reconfiguration which is limited to nonnuclear consolidation activities in fiscal year 1996. The Department is consolidating most nonnuclear activities to the Kansas City Plant with a few activities assigned to the Los Alamos and Sandia National Laboratories to preserve technology. The defense mission at the Rocky Flats, Mound, and Pinellas Plants have ceased. Consolidation will maintain key nonnuclear production capabilities and when completed will result in substantial savings in operating costs.

FISCAL YEAR 1996 BUDGET SUMMARY

The following discussion provides a summary description of the Defense Programs budget requirements in the Weapons Activities appropriations account. The request of \$3.6 billion, reflecting our total obligational authority requirements, is allocated among three major program areas: Stockpile Stewardship (\$1.6 billion); Stockpile Management (\$1.9 billion); and Program Direction (\$0.1 billion). When adjustments are made for the use of prior-year unobligated balances (\$86 million) and the application of cost savings (\$25 million), the total new obligational authority required is reduced to \$3.5 billion. This represents an 8 percent increase over our fiscal year 1995 budget.

DEFENSE PROGRAMS FISCAL YEAR 1996 CONGRESSIONAL BUDGET

[In millions of dollars]

	Fiscal year		
	1994	1995	1996
Stockpile stewardship:			
Core stockpile stewardship	1,215	1,045	1,110
Inertial confinement fusion	185	176	241
Technology transfer & education	238	236	249
NIS Industrial Partnering Program	35		
Subtotal	1,673	1,457	1,600
Stockpile management:			
Core stockpile management	1,535	1,433	1,556
Radiological/Nuc. accident response	65	69	71
Reconfiguration	160	152	121
Tritium source			50
Materials surveillance & tech support	122	103	6
Subtotal	1,882	1,757	1,904
Program direction	162	141	117
Weapons activities (total obligational authority)	3,717	3,356	3,621
Adjustments:			
Use of prior-year balances	(451)	(143)	(86)
"Reinventing Government" savings			(25)
Weapons activities (new obligational authority)	3,266	3,213	3,509

STOCKPILE STEWARDSHIP REQUIREMENTS

The fiscal year 1996 funding request for the Stockpile Stewardship program is \$143 million above the fiscal year 1995 comparable appropriation. The growth supports a number of new initiatives required to maintain confidence in the stockpile without the use of underground nuclear testing as discussed earlier.

Core Stockpile Stewardship is requesting an increase of \$65 million (6 percent) above the fiscal year 1995 appropriation. This increase is a result of providing the funding for the Accelerated Strategic Computing Initiative and the Los Alamos Neutron Scattering Center as discussed previously.

The fiscal year 1996 request includes first year funding for three programmatic construction line items and for two new starts in the ongoing effort to maintain the laboratories infrastructure. Funding of \$1.8 million (total estimated cost of \$46 million) is requested for the Processing and Environmental Technology Laboratory which will provide Sandia National Laboratory with a facility in which to investigate the development, characterization, and application of modern processing methods that significantly reduce the risk to the environment, public and plant personnel and are appropriate for smaller production capacity. Funding of \$6.6 million (total estimated cost of \$48 million) is requested for the Flash X-Ray [FXR] Facility at Lawrence Livermore National Laboratory to enhance the facility with a Contained Firing Facility. The Contained Firing Facility will enclose the test bed of the FXR as a preventive measure to protect the environment surrounding the facility and to reduce visual and auditory impact of operations on encroaching residential areas. Funding of \$8.4 million (total estimated cost of \$43 million) is requested for ATLAS which will provide the Los Alamos National Laboratory with enhanced pulsed power experimental capability to support above ground experiments required to provide some kinds of data no longer available from underground nuclear testing. The Department also proposes to initiate two new infrastructure projects at Los Alamos National Laboratory: Water Well Replacement and Fire Protection Improvements. Funding of \$2.5 million (total estimated cost of \$34 million) is requested for the two projects, which are included in the Weapons Stockpile Stewardship Facilities Revitalization, Phase VI, construction line item. These increases for new projects are offset by the completion of other ongoing projects.

The Inertial Confinement Fusion [ICF] request of \$241 million, an increase of \$64.2 million over the fiscal year 1995 level, accommodates the first year funding for the National Ignition Facility. Fiscal year 1996 construction funding of \$37 million provides for Title I design and operating expenses of \$24 million support advanced conceptual design, environmental/NEPA documentation, and manufacturing readiness. The NIF has a total estimated cost of \$843 million. The ICF base program of glass and gas laser and pulse power development continues to support the primary ICF mission of achieving controlled thermonuclear fusion in the laboratory. The funding request also reflects the completion of the OMEGA laser upgrade and the first full year of operation in fiscal year 1996.

The request for Technology Transfer & Education is funded at the fiscal year 1995 level plus an additional \$15 million provided within Technology Transfer for the President's Partnership for a New Generation Vehicle initiative. Activities under the Technology Transfer program support ongoing cooperative activities with the private sector, but a new focus is provided to ensure dual-benefit projects directly support the core competencies at the weapons laboratories and the research and development needs of the Accelerated Strategic Computing Initiative and advanced design and production technology efforts. Other Presidential and Secretarial commitments, such as the National Information Infrastructure, the High Performance Computing Initiative, the American Textile Partnership, the Semiconductor Modeling Center, and the Healthcare Industries Initiative are also supported. The Education initiatives support crosscutting science education activities ranging from kindergarten to graduate school. The program supports the Defense Programs mission through collaborative programs to leverage the unique sources of our national laboratories and facilities to support science and math education through teacher/faculty enhancement, curriculum improvement, systematic change, student support, Historically Black Colleges and Universities and minority institutions.

STOCKPILE MANAGEMENT REQUIREMENTS

The Stockpile Management program budget request (formerly Stockpile Support) now encompasses five major activities. They are: (1) Core Stockpile Management; (2) Reconfiguration which is now limited to the consolidation of the nonnuclear weapons complex manufacturing activities and technologies; (3) the totality of the Radiological/Nuclear Accident Response Program (formerly named Emergency Response) previously split funded between the Weapons Stockpile Support and Research and Development Programs; (4) the initiative for a Tritium Source; and (5) the Materials Surveillance and Technical Support Program (formerly part of the now discontinued Materials Support Program).

The combining of these activities into one decision unit is based on changes in mission assignments and emphasis, the interrelationship of efforts including providing the flexibility necessary to maintain the enduring stockpile. The combining of these activities also reflects the curtailment and/or cessation of Defense Programs activities at the Savannah River, Mound, Pinellas, and Rocky Flats sites as well as

the turnover/pending turnover of landlord responsibilities for these sites to the Office of Environmental Restoration and Waste Management.

The fiscal year 1996 request for Core Stockpile Management reflects a 9 percent increase over the fiscal year 1995 level and provides for continuation of traditional objectives of this program including the maintenance, evaluation, modification, improvement, and dismantlement of warheads, bombs and shells in accordance with the Nuclear Weapons Stockpile Plan and the following new initiatives: engineering/procurement and fabrication of plutonium pit storage containers, the development of an improved tritium reservoir, and three new construction starts: 96-D-122 Sewage Treatment Upgrade at the Pantex Plant, 96-D-123 Retrofit Chillers at the Y-12 Plant, and 88-D-122-410 Facilities Capability Assurance Program-Replace Cooling Tower East at the Kansas City Plant.

The fiscal year 1996 request for Radiological/Nuclear Accident Response reflects a moderate increase of 3 percent over the fiscal year 1995 level to ensure the maintenance of the Department's technical and operational capabilities for responding to radiological accidents/incidents worldwide. It also provides for the initiation of construction of the Washington Aerial Measurements Operations Facility at the Andrews Air Force Base in Maryland, which will provide a secure two-story replacement facility to house personnel and equipment in support of this program.

The fiscal year 1996 request for Reconfiguration supports only the consolidation of nonnuclear manufacturing activities; all other former Reconfiguration activities have been discontinued or moved to other Departmental program elements. This request is reflective of the narrowed programmatic focus, decreasing by approximately 20 percent below the fiscal year 1995 level, and is consistent with the schedules established for consolidating nonnuclear manufacturing activities previously conducted at the Mound, Pinellas and Rocky Flats Plants.

Funding of \$50 million is requested to support implementation of the Secretarial Record of Decision [ROD] associated with the Tritium Supply and Recycling Programmatic Environmental Impact Statement scheduled for November 1995. This funding will be used to initiate a project to provide a new assured tritium source, either a reactor or an accelerator; a Project Office to manage implementation of the ROD; and may be used to initiate a light water tritium target development program to protect the contingency option of using existing light water reactors to make tritium, in the event of a national emergency.

The budget request provides for escalation over the fiscal year 1995 level to support ongoing materials processing and recovery activities at Oak Ridge facilities; headquarters, safeguards, and security oversight activities; and materials surveillance and disposition activities at former Defense Programs sites including Fernald, Hanford, and Idaho National Engineering Laboratory.

PROGRAM DIRECTION REQUIREMENTS

The Weapons Program Direction provides funds for personnel-related expenses, capital equipment, and contractual services for Defense Programs offices at DOE Headquarters and three Operations Offices: Albuquerque, Nevada, and Oakland. The statutory Community Assistance Program for Los Alamos, New Mexico, is also funded from this account.

The Defense Programs portion of funding for fiscal year 1996 is \$25 million below the fiscal year 1995 appropriation. A reduction of \$18 million is attributable to the assignment of responsibility for the Capital Asset Management Process and Condition Assessment Survey [CAMP/CAS] program to the applicable program areas. The remainder is due to downsizing of the Federal staff and contractual support services.

ADJUSTMENTS TO REDUCE NEW FUNDING REQUIREMENTS

The budget request reflects \$111 million in offsets for new obligational authority. The budget assumes that at least \$25 million in cost savings will be achieved through contracting and procurement reforms and streamlining efficiencies as part of the Department's effort to reinvent government. Another \$86 million is projected to be made available from funding appropriated in prior years. Prior year balances have been drawn down over the past several years as funding reductions have caught up with the programmatic reductions that responded more quickly to the end of the Cold War. Because of these adjustments, the level of these balances at the beginning of fiscal year 1996 is projected to be the minimum necessary to preserve ongoing operations from one fiscal year to the next.

CONCLUSION

While the world has witnessed enormous changes over the last few years, nuclear weapons are still expected to provide their deterrent contributions to U.S. national security. Our continuing reliance on a nuclear deterrent requires that we have high confidence in their safety, security, and reliability. Maintaining that confidence is the most important and challenging task before the Department. No longer can we rely on underground nuclear testing and a continuous stream of development and production engineering projects. In the future, our confidence will be based on maintaining the vitality of the unique scientific and engineering skills of the Department and its weapons laboratories. To preserve and expand this resource, we have initiated the Stockpile Stewardship program. It is a major scientific challenge. We are just beginning to understand the complexity of the challenge before us and to devise the means to meet it. We are confident that the program outlined above will allow the Department, even a decade or more from now, to ensure that the stockpile is safe, secure, reliable and effective. We also expect that the program will help us attract and retain the high-caliber of people across a broad spectrum of scientific and engineering disciplines required to maintain this Nation's nuclear deterrent.

BIOGRAPHICAL SKETCH OF DR. VICTOR H. REIS

Dr. Victor H. Reis has served as the Assistant Secretary for Defense Programs in the U.S. Department of Energy since August 1993. In this position, Dr. Reis directs all aspects of the Department of Energy's post-Cold War nuclear weapons programs. These responsibilities include maintaining U.S. nuclear weapons in a safe, secure, reliable, and environmentally sound manner; dismantling retired nuclear weapons to meet international arms control obligations; providing efficient and forward-looking management of nuclear materials; reducing substantially the size of the nuclear weapons complex to one that is smaller and more cost efficient; ensuring the continued science and technology base of the Nation's nuclear weapons program; and fostering technology transfer through cooperative research and development with academia and the private sector. Dr. Reis was nominated for his position by President Clinton in May 1993 and was confirmed by the U.S. Senate on August 6, 1993.

Prior to accepting his present position, Dr. Reis was the Director of Defense Research and Engineering at the Pentagon, a position he held since late 1991. As Director, Dr. Reis was the principal advisor in the Office of the Secretary of Defense for scientific and technical matters, basic and applied research, laboratories, and early development of defense weapons systems. While serving at the Department of Defense, Dr. Reis was also Chairman of the Nuclear Weapons Council and the Strategic Environmental Research and Development Program—a joint project of the Departments of Defense and Energy and the Environmental Protection Agency.

Prior to assuming the directorship of Defense Research and Engineering, Dr. Reis served as the Deputy Director and then Director of the Defense Advanced Research Projects Agency beginning in December 1989. Dr. Reis also has served as Special Assistant to the Director, Lincoln Laboratory, Massachusetts Institute of Technology; Senior Vice President for Strategic Planning, Science Applications International Corporation; Assistant Director for National Security and Space, Office of Science and Technology Policy, Executive Office of the President; and other positions in industry, academia and Government.

Dr. Reis earned a B.M.E. from the Rensselaer Polytechnic Institute; a M.Eng. from Yale University; and a M.A. and Ph.D from Princeton University. He is the recipient of numerous awards, including the Department of Defense Distinguished Public Service Medal.

Dr. Reis was born in New York City on February 11, 1935; is married with four children; and resides with his wife in Washington, DC.

STATEMENT OF HAROLD SMITH

Senator DOMENICI. Thank you very much, Dr. Reis.

As it is noted, Dr. Reis is Assistant Secretary for Defense Programs of the Department of Energy, but because there is such a natural, necessary relationship between the Department of Energy and the Department of Defense, we would not have witnesses here that are just from the Department of Energy. Our next witness, Dr. Harold Smith, is Assistant to the Secretary of Defense for Atomic

Energy, and so they work together very closely to define defense needs and requirements with the Department of Energy. Now, Harold, you may proceed.

Dr. SMITH. Mr. Chairman, I am honored to have this opportunity to appear before you today, and I must say, Senator, that I agree with your point on the relationship between Dr. Reis and myself. It is a close, warm, collegial one that I think is effective.

Sir, I would like to submit written testimony for the record and highlight a few items covered in that testimony.

Senator DOMENICI. It will be done.

Dr. SMITH. I will focus on the relationship that you suggested, sir, between the Departments of Energy and Defense in meeting our share of responsibility for the continued safety, security, and reliability of the U.S. nuclear weapons stockpile. The stewardship is particularly challenging at this time for a variety of significant reasons.

First, the nuclear weapons that make up our enduring stockpile will be retained in inventory well beyond their designed lifetime. Second, both departments are quite properly reducing the infrastructure from that required to support a large, cold war-era stockpile to a much smaller one commensurate with the present era. But we must maintain the same exacting conditions. We must, therefore, provide with fewer staff and facilities the same level of safety, security, and reliability as we have in the past. And third, we, the stewards of that stockpile, must assume that there will be no further testing of those weapons. Therefore, we must find new ways to maintain a requisite level of confidence in an aging stockpile. This is neither an easy nor an impossible assignment.

RELATIONSHIP BETWEEN THE DEPARTMENT OF ENERGY AND DEPARTMENT OF DEFENSE

This morning, I will discuss the relationship between the two departments using the metaphor of a customer and supplier, the DOD, of course, being the customer and the DOE being the supplier of nuclear weapons. It is the responsibility of the customer to generate his or her requirements precisely and to inform the supplier of those requirements in a clear and timely manner. The nuclear posture review, or NPR, is the generator of those requirements, and the nuclear weapons stockpile memorandum [NWSM] is the means by which those requirements are conveyed to and understood by the DOE in a very clear and cooperative manner.

When the commodity in question is as critical and as dangerous as nuclear weapons, it is not sufficient simply to state the requirements. Oversight is needed. In this case, joint oversight is preferred. We feel we have found a very effective instrument for this in the Nuclear Weapons Council chaired by the Deputy Secretary of Defense.

Finally, we must ensure maintenance of the product by, (a) supporting the stockpile base—pardon me, the science-based stockpile stewardship, or SBSS; (b) by contributing to a robust peer review of each weapon in the active inventory; and, not least of all, (c) by ensuring that the Department of Defense is an educated customer, one able to discern significance from insignificance with regard to

the values that will and should be reported as the stockpile ages. I will cover each of these customer supplier mechanisms in turn.

NUCLEAR POSTURE REVIEW

One might ask why do we need nuclear weapons at all? This question was the correct starting point for a lengthy, zero-based major review of the Nation's future weapons stockpile requirements. It is called the nuclear posture review, which was the first such in 15 years. Completed last summer and approved by the President, the NPR provides the policy guidance, force structure requirements, and obligations of stewardship for the enduring nuclear weapons stockpile. The NPR recognized that the size and posture of the cold war deterrent is excessive to future security challenges. However, the NPR concluded that in a world of uncertainty nuclear weapons and nuclear deterrents are an essential element of our national security. Nonetheless, the size, form, and context of that deterrent is significantly different from that which prevailed during the cold war.

First, the NPR sought to achieve a proper balance between what Secretary Perry has called leading and hedging. By that, he means providing the leadership for continuing reductions in our stockpile of nuclear weapons while at the same time maintaining the ability to respond to the emergence of a new nuclear threat, including the possible reversal of trends in Russia, a nation that still retains 25,000 nuclear weapons. A credible deterrent also serves us, and our allies and friends, by discouraging the use of weapons of mass destruction developed or otherwise acquired by regional aggressors, and even discouraging the latter from acquiring them in the first place.

The NPR focused heavily upon improved safety and security. In addition to reducing the sheer size of the active inventory, a number of additional actions have or are being taken to improve nuclear safety, security, reliability, and control. For example, no nuclear weapons remain in the custody of U.S. ground combat forces. Naval nonstrategic nuclear weapons are no longer deployed at sea. Strategic bombers are no longer on alert. Nuclear weapons storage locations have been reduced by 75 percent. The number of personnel with access to nuclear weapons or their control has been reduced by 70 percent.

The NPR also requires the development of a stockpile surveillance engineering base, demonstration of the capability to refabricate and certify weapons in the enduring stockpile, maintenance of the capability to design new nuclear weapons should that prove necessary, and maintenance of the requisite supporting science and technological bases. Finally, to support these requirements, a strategic reserve of highly enriched uranium, weapons grade plutonium, and tritium must be maintained.

NUCLEAR WEAPONS COUNCIL

Requirements generated by the NPR are conveyed to the Department of Energy through the Nuclear Weapons Council [NWC], an interdepartmental organization which manages, reviews, and arbitrates nuclear weapons issues relative to the maintenance of a reliable, safe, and secure stockpile and supporting infrastructure. The

Council is chaired by John Deutch, the Deputy Secretary of Defense. Its members are the Under Secretary of Energy, Mr. Curtis, and the Vice Chairman of the Joint Chiefs of Staff, Admiral Owens. I serve as the Executive Secretary, as well as chairman of the Standing and Safety Committee which supports the NWC.

A central activity of the NWC is the preparation of the annual nuclear weapons stockpile memorandum, which quantifies the DOD requirements that were signed by both secretaries before submission to the President. The Council prepares this document, oversees its implementation, and ensures that national policy is being sufficiently executed. The Council meets regularly, and has addressed in detail a myriad of questions impacting on the stockpile of today and tomorrow. Among the topics addressed this year were: the impact of declining budgets, the retirement of weapons, long-term storage of fissile material, identification of nuclear materials for safeguarding under the auspices of the International Atomic Energy Agency.

TRITIUM PRODUCTION

A particularly important decision concerning production of tritium was taken this year. The Council concluded that accelerator production of tritium [APT], could meet the needs of the enduring stockpile provided a robust and parallel risk reduction program was initiated immediately and that provision was made for a reactor-based hedge should the accelerator technique fail for reasons of schedule, cost, or technology.

I have discussed how the DOD generated its requirements, how it transmits those requirements to the DOE, how it maintains managerial oversight to see that these requirements are met, and how we ensure that the products meet the requirements of safety, security, and reliability. In the past, when testing was permitted, it was relatively easy for the DOD to be assured that the nuclear weapons produced by DOE, in fact, met and continue to meet requirements. It is far more difficult to make that assessment without benefit of tests.

CONFIDENCE IN THE STOCKPILE

In the future, the combination of stockpile stewardship, aggressive stockpile surveillance, and a robust program of independent peer review, will provide the best means to offset the loss of nuclear testing. However, without testing there will be inevitable erosion in our understanding, and, therefore, in our confidence, in that stockpile. Maintaining sufficient confidence, therefore, is the challenge of the new environment. I believe we are on the right track, as we address this critical issue.

Mr. Chairman, I can report today the stockpile is safe, secure, and reliable, that it meets the requirements of the Department of Defense, and that the proposed budget for fiscal year 1996 for defense programs in DOE provides sufficient funding to meet our responsibilities.

PREPARED STATEMENT

Mr. Chairman, that concludes my statement. I would be pleased to answer your questions at any time. Thank you very much.
[The statement follows:]

PREPARED STATEMENT OF HAROLD P. SMITH, JR.

INTRODUCTION

Mr. Chairman and members of the Subcommittee, I am honored and delighted to have this opportunity to appear before you again. My remarks will focus on the relationship between the Departments of Energy and Defense in meeting our shared responsibility for the continued safety, security, and reliability of our nuclear weapons stockpile. This stewardship responsibility is particularly challenging since the nuclear weapons of our enduring stockpile will be retained in the inventory well beyond their designed lifetimes. Given this reality, I accord nuclear weapon safety, security, and reliability the highest priority. I am pleased to report that the Defense Department and Energy Department are working hand-in-glove in executing our shared responsibility.

THE NUCLEAR POSTURE REVIEW

As the starting point for my remarks, I would like to comment on the requirement for an enduring nuclear stockpile. Why do we need nuclear weapons at all in the future? This question was the starting point for a lengthy, zero-based, major review of the nation's future nuclear weapons requirements, the Nuclear Posture Review or NPR. This review was the first such comprehensive review in fifteen years. Completed this past September and approved by the President, the NPR provides the policy guidance, force structure requirements, and stewardship obligations for the enduring nuclear weapons stockpile. In effect, the Nuclear Posture Review was the nuclear companion to the Defense Department's Bottom Up Review which guides the conventional component of our national security strategy.

The NPR recognized that the size and posture of the U.S. Cold War nuclear deterrent is excessive to future security challenges. However, in a world of certainty and still evolving security needs, the NPR concluded that nuclear weapons—and nuclear deterrence—will remain an essential element of U.S. national security. However, the size, form, and context of that deterrent is significantly different from that which served us so well during the cold war.

First, the NPR sought to achieve a proper balance between what Secretary Perry has called "leading and hedging." By this, he means providing the leadership for continuing reductions in nuclear weapons while at the same time retaining the ability to respond to the emergence of a new nuclear threat, including a possible reversal of trends in Russia, a nation that currently has over 25,000 nuclear weapons. A credible U.S. nuclear deterrent also serves us and our Allies and friends by discouraging the use of weapons of mass destruction developed or otherwise obtained by regional aggressors.

The force structure resulting from the NPR is significantly reduced from that of the cold war. This force structure will be comprised of 14 Trident ballistic missile submarines, 66 B-52 and 20 B-2 bombers, and three wings of Minuteman III ICBMs with each missile downloaded to a single-warhead. Dual-capable aircraft are being maintained only in Europe and the United States. Regarding naval non-strategic nuclear weapons, all that will be retained is the capability to deploy nuclear-armed land-attack Tomahawk missiles on nuclear-powered attack submarines.

This equates to a 47 percent reduction in active strategic warheads and a 90 percent reduction in active non-strategic warheads from the 1988 level. Overall, compared to 1988, the total active stockpile has been reduced by 59 percent. This reduction will reach 79 percent by 2003.

Second, the NPR focused heavily upon improved safety and security for the residual nuclear force. In addition to reducing the sheer size of the active nuclear inventory, a number of additional actions have been or are being taken to improve nuclear safety, security, and use control. For example, no nuclear weapons remain in the custody of U.S. ground combat forces. Non-strategic nuclear weapons are no longer deployed at sea. Strategic bombers remain off day-to-day alert. Furthermore, nuclear weapons storage locations have been reduced by 75 percent and personnel with access to nuclear weapons or their control have been reduced by 70 percent.

The NPR also directs the Departments of Defense and Energy to maintain nuclear weapon capability without underground nuclear testing and without the production

of fissile material. Specifically, it directs the development of a stockpile surveillance engineering base; retention of the capability to refabricate and certify weapon types in the enduring stockpile; maintenance of the capability to design, fabricate, and certify new nuclear warheads should that prove necessary; and maintenance of the requisite supporting science and technology base.

MEETING THE CHALLENGE

To meet these challenges, the Department of Defense, in partnership with the Department of Energy, must address three basic issues. First, how does DOD, as the customer, determine the requirements and characteristics for the future stockpile? Second, how are these requirements communicated to the supplier, the Department of Energy? Third, how do the two Departments most efficiently maintain that stockpile?

As I already mentioned, the NPR stands as a pivotal document to define DOD's requirements for the stockpile. The NPR defined the outyear force structure requirements and also provided the basis for developing and establishing necessary refurbishment and replacement materials. This in turn established the requirement for a professional cadre of technical nuclear design personnel to ensure that the safety, security, and reliability requirements are met. Furthermore, the NPR requires that this nuclear expertise include the capability to design, fabricate, and certify nuclear warheads in the absence of testing and fissile material production. To support these requirements, a Strategic Reserve of highly enriched uranium, weapons grade plutonium, and tritium must be maintained. The process for ensuring the provision of these essential capabilities is conducted through the Joint DOD/DOE Nuclear Weapons Council.

THE NUCLEAR WEAPONS COUNCIL

The Nuclear Weapons council is an interdepartmental (DOD and DOE) organization which manages, reviews, and arbitrates nuclear weapons issues relative to the maintenance of a reliable, safe, and secure stockpile and supporting infrastructure. As an interdepartmental organization, the NWC is supported by a wide-range of disciplines: security and safety experts, designers, producers, managers, maintainers, and operators. Membership of the NWC consists of the Deputy Secretary of Defense, Under Secretary of Energy, and the Vice Chairman of the Joint Chiefs. The council is supported by the NWC Standing and Safety Committee, which I chair.

A central activity of the NWC is the preparation of the annual Nuclear Weapons Stockpile Memorandum which provides the Defense Department's nuclear weapons requirements to the Energy Department. The Council prepares this document, oversees its implementation, and ensures that national policy is being efficiently executed.

Issues considered and addressed by the NWC this past year include a myriad of detailed questions impinging on the stockpile of today and tomorrow. Among the topics addressed this past year were the impact of declining budgets, the retirement of weapons and weapon types; the long-term storage of fissile material; identification of nuclear materials for International Atomic Energy Agency [IAEA] safeguards, and the impact of mission realignment and base closures. Considerable time and effort was directed toward issues related to the aging of the stockpile. In particular, the Council wrestled with ways to best maintain confidence in individual weapon and collective stockpile safety, security, and reliability.

As an example of a key decision with long-term implications, the Council recently considered alternative source and production programs to ensure a future supply of tritium. The Council concluded that accelerator-based tritium production could meet the needs of the enduring stockpile.

STOCKPILE STEWARDSHIP PROGRAM

An additional requirement directed by the fiscal year 1994 National Defense Authorization is: "a stewardship program to ensure the preservation of the core intellectual and technical competencies of the United States in Nuclear Weapons." The Department of Energy, with the support and concurrence of the Defense Department, has established the Science Based Stockpile Stewardship Program. This program is designed to retain the capability to design and produce replacement weapons while simultaneously dismantling obsolete weapons under the tightest safety and security provisions. In particular, the Stockpile Stewardship Program will provide improved forensic and diagnostic capabilities.

INDEPENDENT ASSESSMENT

As the stockpile decreases with a concomitant increase in demilitarization requirements, a parallel and critical activity is the technical evaluation of the weapons remaining in the stockpile. The basic elements of such an evaluation are in place in the form of the nuclear competencies of the national laboratories and the DOD. The Stockpile Stewardship Program will build on these centers of nuclear excellence by developing a robust peer review process with both DOE and DOD participation. This peer review process will provide a technically sound structure and methodology to ensure a safe, secure, reliable nuclear weapons stockpile.

CONCLUSION

I can confidently report today that the stockpile is safe, secure, and reliable. It also meets the requirements of DOD and the Services. The fiscal year 1996 budget request provides sufficient funding to meet our responsibilities.

For the future, the combination of the Stockpile Stewardship Program, aggressive stockpile surveillance, and a robust program of independent peer review provides the means to partially offset the loss of nuclear testing. However, without testing, there will be potential for erosion in the degree of confidence in the individual and collective characteristics of the stockpile. Maintaining confidence will be challenging in such an environment but I believe that we are on the right track to address this critical issue.

Since the Manhattan Project, the nation has invested heavily in the development, production, deployment, and maintenance of the national nuclear deterrent. Nuclear weapons, even at significantly reduced levels, remain a core component of future national security strategy. Proper stewardship is, therefore, an enduring responsibility. It is imperative that the nation continue to provide the resources to fulfill this responsibility.

Mr. Chairman, this concludes my statement. I hope that I have been responsive to your needs. I would be pleased to answer your questions and those of your colleagues.

BIOGRAPHICAL SKETCH OF HAROLD P. SMITH, JR.

As Assistant to the Secretary of Defense, Dr. Smith is responsible for the planning, modernization, security, and survivability of the nuclear stockpile. He oversees programs for chemical and biological defense, destruction of chemical weapons, acquisition of counterproliferation technology, and management of arms control treaties. The Defense Nuclear Agency and the On-Site Inspection Agency report to him. Dr. Smith also has the responsibility for implementing programs for the safe and secure dismantlement of weapons of mass destruction of the former Soviet Union. In addition, Dr. Smith chairs the NATO Senior Weapons Level Protection Group that ensures the security and survivability of NATO tactical nuclear deterrent and advises alliance ministers on matters of nuclear protection.

Dr. Smith was the president of the Palmer Smith Corporation, a consulting firm that specializes in the management of high technology programs for aerospace and defense contractors. Dr. Smith was also a founder and director of Swerling, Manasse & Smith, Inc., a Los Angeles firm that analyzes recent advances in radar systems.

Since 1968, Dr. Smith has served as a consultant and advisor to the Office of the Secretary of Defense, the Office of the Secretary of the Air Force, and the Armed Services Committees of the U.S. Senate and the U.S. House of Representatives. He has advised on matters of national security policy, giving particular emphasis to projects requiring a broad range of technical and managerial skills. As a member of the Air Force Scientific Advisory Board, he has chaired the Tactical Advisory Panel and has directed studies ranging from improved operational testing of complex weapon systems to development of modern munitions. For the Defense Science Board, he has chaired task forces concentrating on the vulnerability of strategic systems. He has been a member of the Defense Sciences Advisory Board for the Lawrence Livermore National Laboratory and the Heinz/Wirth Task Force on Defense Spending, the Economy, and the Nation's Security.

From 1960-1976, Dr. Smith was a member of the faculty of the University of California and published over 50 papers on the optimal control of exotic nuclear systems and on the interaction of radiation with surfaces. For his sabbatical year in 1966, Dr. Smith was awarded a White House Fellowship and was assigned as a Special Assistant to the Secretary of Defense.

Dr. Smith received all his degrees from the Massachusetts Institute of Technology: a Bachelor of Science in Mechanical Engineering in 1957, a Master of

Science in Nuclear Engineering in 1958, and a Ph.D. in Nuclear Engineering in 1960. He held a Sloan National Scholarship as an undergraduate and a Nuclear Technology Fellowship as a graduate student. Dr. Smith was an honor initiate of Tau Beta Pi and a member of Sigma Xi.

Dr. Smith is a Fellow of the American Physical Society and has twice received the Exceptional Civilian Service Award of the Air Force and the Commendation of the Secretary of the Navy. He has been a member of the National Academy of Science Committee on Undersea Warfare and has served on the editorial board of the Journal of Defense Research. He is a senior member of the Institute of Electrical and Electronics Engineers. In addition to technical papers, he has published articles of public interest, related to national Security, in the New York Times and the Christian Science Monitor.

Dr. Smith was born in Greensburg, Pennsylvania, in 1935. He and his wife, the former Marian Bamford, and their three children have resided in California since 1960.

STATEMENT OF KENNETH BAKER

Senator DOMENICI. How long would your testimony take, Mr. Baker?

Mr. BAKER. About 7 minutes, sir.

Senator DOMENICI. Let me thank you for your long service in the Department of Energy in the area of nonproliferation. We respect your professionalism and we are glad you are there.

Would you please give us your testimony?

Mr. BAKER. Good morning, Mr. Chairman. It is a pleasure to address you as the acting Director of Nonproliferation and National Security at the Department of Energy. With your permission I will read a brief statement, and submit the rest for the record.

Our activities focus on three areas: reducing the global nuclear danger; providing effective, cost-efficient safeguards and security for the departmental complex; and improving the Department's emergency response capability. Nuclear nonproliferation has become one of the highest national security priorities, and the Department of Energy is leading the way in providing technical and analytical support to United States and international nonproliferation efforts. We perform aggressive research and development activities in support of national and international nonproliferation concerns, specifically, proliferation detection technology and treaty verification. We provide timely and customized intelligence to define serious national security problems for the United States. Over the past year, we have made significant accomplishments in reducing the global nuclear danger.

RUSSIAN-UNITED STATES LABS-TO-LABS PROGRAM

Our program of cooperation between DOE laboratories and nuclear research facilities in Russia to improve protection, control, and accounting of nuclear weapons is yielding dramatic results. At Kurchatov Institute, on the outskirts of Moscow, the United States and Russia jointly collaborated to secure nuclear weapons grade materials. The pace of this improvement was extraordinary. Work was completed in 3 months. The cost was modest, just less than \$1 million. I would like to show you, sir, what has occurred.

On the right is a before picture at Kurchatov, which you can see. When we walked into Kurchatov there were woods inside, there was no access control, no radiation detection systems. There was one guard. We walked into the facility; we found footlockers just

like you see in college. We opened up a footlocker, and there was 75 kilograms of uranium, enough to build three nuclear weapons.

We took this facility, we put in cameras, we put in a new fence, we put in a radiation detection system, we put in a computer system, and we made this facility, with less than \$1 million, a facility that now has secure capability, and it is only one of many that we'd like to take on in the 1996 timeframe, again showing you what can be done in a very short period of time.

Senator DOMENICI. What kind of money was used for that? I mean, what kind of programmatic money?

Mr. BAKER. It was treaty verification money. It was lab-to-lab money.

Senator DOMENICI. Was it Nunn-Lugar money?

Mr. LUONGO. It was not Nunn-Lugar money, no.

Senator DOMENICI. And the reason it is so cheap is because you can buy a lot of things in Russia, including a lot of work?

Mr. BAKER. Yes; you can buy a lot of things cheap, plus we know how to do this with them. So our scientists are working with their scientists to reduce the nuclear danger.

Senator DOMENICI. Thank you.

NONPROLIFERATION PROGRAM EXPANSION

Mr. BAKER. The nonproliferation will expand in the coming year, with the promise of securing tons of weapons-usable material, not just kilogram quantities.

Last November, we successfully transferred approximately 600 kilograms of highly enriched uranium from Kazakhstan to the Department's Oak Ridge facility in Tennessee for safe and secure interim storage. By gaining ownership of this material, the United States has effectively removed it from potential acquisition by those who could develop weapons of mass destruction.

We have developed space-based sensor capabilities for detecting atmospheric and near-Earth nuclear explosions. These sensors, on Defense Department satellites, provide a system for the United States to continuously detect nuclear explosions and verify treaty compliance worldwide.

COMPREHENSIVE TEST BAN TREATY

During 1994, we were assigned the responsibility as the U.S. Government's primary agency for research and development of technologies supporting U.S. requirements to monitor a future comprehensive test ban treaty. We also provided technical expertise and policy recommendations in support of diplomatic efforts to achieve an indefinite extension of the Nonproliferation Treaty, a cornerstone of U.S. national security policy. In addition to these accomplishments, there is still much more to do. Our requested increase of \$86 million over fiscal year 1995 will allow us to accelerate these essential nonproliferation efforts and reduce the global nuclear danger.

NONPROLIFERATION EFFORTS

The Department will expand its efforts to end the civilian production and use of weapons-usable fissile materials. We will con-

tinue our efforts to monitor United States and Russian inventories of plutonium and highly enriched uranium for weapons dismantlement, with a goal of ensuring that dismantlement is irreversible. Among other measures, we will advance nonproliferation by our efforts in North Korea, by supporting negotiations of a comprehensive test ban treaty and an international fissile material cutoff convention, and by facilitating International Atomic Energy Agency activities the world over.

SAFEGUARDS AND SECURITY

Our unique experience in support of national and international nonproliferation policies is supplemented by our efforts to develop more effective, cost-efficient safeguards and security of the DOE complex. Over the past year, we have reduced Department-wide safeguards and security costs by 12 percent, without degrading security. The costs have come down through consolidation of nuclear material at DOE sites, improved safeguards in security planning, elimination of redundancies, effective use of the state-of-the-art technology, and reducing the number of security clearances.

DECLASSIFICATION INITIATIVE

We are also improving the trust held by the American people by spearheading the Department's openness initiative. We have an active program to declassify information about the Department's activities, and we are enabling greater access to the Department and to its facilities.

All these activities are done consistent with national security objectives. I would like to emphasize again that any changes we have made in the safeguards and security program have not degraded our security posture. We are learning to meet the security challenges of today with less, and we are being successful in that endeavor.

EMERGENCY RESPONSE

Finally, the Office of Nonproliferation and National Security seeks to improve the Department's emergency response capability. Our primary responsibility is to provide quick response to emergency situations concerning the Department of Energy. Over the last year, the Department's ability to effectively respond to emergencies has been enhanced by improved training procedures and facilities by DOE sites.

PREPARED STATEMENT

In summary, the fiscal year 1996 request, if granted, will allow the Department of Energy to continue to reduce the global nuclear danger, provide efficient, cost-effective safeguards and security while fostering public trust, and provide effective emergency response under any condition.

I will be happy, sir, to address any questions that you may have. Thank you.

[The statement follows:]

PREPARED STATEMENT OF KENNETH E. BAKER

Good morning Mr. Chairman and Members of the subcommittee. It is a pleasure to address you today as the Acting Director of the Office of Nonproliferation and National Security at the Department of Energy [DOE].

The Department has long been actively involved in preventing proliferation of nuclear weapons technology and protecting nuclear material and facilities. Moreover, in the post-Cold War era, the Department and its system of national laboratories have conducted a vigorous program of nonproliferation research and development with direct benefit to countering the threat of proliferation.

This office oversees the unique capabilities that support a core program of nuclear nonproliferation activities even as we make efficient use of our unique technical capability to support and develop advanced technologies aiding in the detection and countering emerging proliferation threats. Consequently, this office provides a wide range of services for a broad range of domestic constituencies and nonproliferation regimes.

The challenges are clear: the collapse of the Soviet Union has offered new potential for nuclear transparency and verified reductions, while at the same time raising real concerns about where their former weapons scientists will be employed and over the adequacy of security of their nuclear materials; managing the nuclear heritages of others of the Newly Independent States, such as Kazakhstan and Ukraine; Iraq and North Korea; and concerns over terrorism, perhaps involving stolen fissile materials.

The programs of the Office of Nonproliferation and National Security address these and other threats. President Clinton has made the nonproliferation of nuclear weapons one of the Nation's highest priorities. The United States is committed to weave this element of our policy more deeply within the fabric of our relationships with the world's nations and institutions. As the preeminent agency for providing technological and analytical support to guard against the spread of nuclear weapons and weapons-usable materials, the Department of Energy is a major participant in our federal and international nonproliferation efforts.

Today, I would like to focus on three key areas that address aspects of the mission and threats discussed above: reducing the global nuclear danger; providing effective, cost-efficient safeguards and security of the Departmental complex while fostering public trust through openness; and improving the Department's emergency response capability. In addition to meeting national security requirements, the office also is a vital contributor to the Department's science and technology, environmental quality, energy resources, and industrial competitiveness missions of the Department, all of which directly affect the security and quality of life of every American.

The fiscal year 1996 request for nonproliferation and national security activities is \$573.7 million, less an offset of \$13 million of prior year balances for a net fiscal year 1996 Congressional Budget Request of \$560.7 million.

Our nonproliferation focus is five-fold: (1) secure nuclear materials in the former Soviet Union; (2) assure safe, secure long-term storage and disposition of surplus fissile materials; (3) establish transparent and irreversible nuclear reductions; (4) strengthen the nuclear nonproliferation regime, and (5) control exports of nuclear technology and materials. The Department's active nuclear nonproliferation program is augmented by aggressive research and development activities, technical and analytical support to treaty development and implementation, and providing timely and customized intelligence to support these efforts.

Over the past year, we have made significant accomplishments in reducing the global nuclear danger:

- We lead a program of cooperation between DOE laboratories and nuclear research facilities in Russia to improve the protection, control, and accounting of nuclear materials which could be used to make nuclear weapons. A demonstration project was successfully undertaken to upgrade and enhance the protection of the Kurchatov Nuclear Research Center in Moscow during 1994 and plans are in place for follow-on demonstrations at several more sites during 1995.
- Project Sapphire, a formerly-secret operation, successfully transferred approximately 600 kilograms of highly enriched uranium from the Ulba Metallurgical Plant in Kazakhstan to the Department's Oak Ridge facility in Tennessee for safe and secure interim storage. By gaining ownership of this material, the United States has effectively removed the material from potential acquisition by those who could develop weapons of mass destruction. The uranium is currently in interim storage at the Y-12 plant in Oak Ridge until it can be moved to a commercial facility where it will be converted to low enriched uranium for use in commercial nuclear power plants in the future.

- We have completed development and deployment of space-based sensors capable of detecting atmospheric and near-Earth nuclear explosions. These sensors, on Defense Department satellites, provide a system for the United States to continuously detect nuclear explosions and verify treaty compliance world-wide.
- During 1994, the responsibility for research and development of technologies to support U.S. requirements to monitor a future Comprehensive Test Ban Treaty [CTBT] was transferred from the Department of Defense to the Department of Energy (specifically to the Office of Nonproliferation and National Security). We have enlisted four of our National Laboratories—Livermore, Los Alamos, Sandia, and Pacific Northwest—to develop technological options for verification of arms control policy.
- We have also been providing, and will continue to provide, technical expertise and policy recommendations in support of diplomatic efforts to achieve an indefinite extension of the Non-Proliferation Treaty, a cornerstone of U.S. national security policy. Our support included development of overall strategy, initiatives for transparency and irreversibility (including placing excess materials under International Atomic Energy Agency safeguards), technical and analytical support to Comprehensive Test Ban Treaty negotiations, and the establishment of nuclear technology programs designed to assist in the fulfillment of U.S. obligations for peaceful nuclear cooperation.

However, with all of these accomplishments, there is still much more to do. In fiscal year 1996, we must accelerate our efforts to protect fissile materials and redirect nuclear expertise in the former Soviet Union to peaceful projects. The Department will expand its efforts to end the civilian production and use of weapons-usable fissile materials through promotion of alternative energy sources, the Reduced Enrichment for Research and Test Reactors [RERTR] Program, and nuclear material purchases. Also in fiscal year 1996, the Department will continue its efforts to monitor U.S. and Russian inventories of plutonium and highly enriched uranium from weapons dismantlement through inspections and other activities that make dismantlement transparent and irreversible.

Among other measures, we will advance nonproliferation: by our efforts in North Korea; by continuing support of negotiations of a Comprehensive Test Ban Treaty and an international fissile material cutoff convention; and by facilitating International Atomic Energy Agency inspections in the United States. Reflecting this need to accelerate our nonproliferation efforts, our budget for fiscal year 1996 is increased by more than \$86 million over fiscal year 1995.

Our unique expertise in support of national and international nonproliferation policies is augmented by our efforts to develop more effective, cost-efficient safeguards and security of the DOE complex. Over the past year, we have reduced department-wide safeguards and securities costs by 12 percent through consolidation of sensitive holdings (e.g., nuclear material), elimination of redundancies, effective use of state-of-the-art technology, reduction of security clearances because of the Department's changing missions, and improved safeguards and security planning. All major safeguards and security reductions are subjected to thorough vulnerability analyses to assure that they do not compromise security. We are learning to meet the security challenges of today with less, and are successful in this endeavor.

We are also spearheading the Department's openness initiative, improving the sense of trust held by our customers—the American people. This includes declassifying information about the department's activities and improving access to the department and its facilities and without compromising national security and consistent with nonproliferation concerns. Last year, we declassified approximately 110,000 pages of previously classified information. We developed an on-line capability for the public to gain access to the Department's declassification actions through the Internet; no longer is the American public left in the dark about what the Department has declassified—now they have the capability for instant information.

Finally, the Office of Nonproliferation and National Security seeks to improve the Department's emergency response capability. Our primary responsibility in this area is to provide facilities and/or analysis for the management of emergency situations affecting national or regional energy supply and demand, nuclear materials or weapons, or events which threaten DOE facilities or personnel or where DOE assets can contribute to recovery.

The office has recently gained ownership of the Liquefied Gaseous Fuels Spill Test Facility which is the only facility in the country authorized to release hazardous materials in the open atmosphere. This facility allows us to improve training to address any accidents at DOE sites and also provide a facility for developing and testing equipment to detect, monitor, and verify proliferant activities of other nations in support of our national goals.

BUDGET REVIEW

The following table summarizes the fiscal year 1996 budget request from the Energy and Water Development Appropriation as compared with the fiscal year 1995 adjusted appropriation (in thousands):

SUMMARY OF WATER DEVELOPMENT APPROPRIATION

[In thousands of dollars]

Appropriation/Activity	Fiscal year 1995	Fiscal year 1996	Change
Other Defense activities:			
Nonproliferation and verification research and development	226,037	226,142	+ 105
Arms control and nonproliferation	76,799	162,364	+ 85,565
Intelligence	43,061	42,336	- 725
Nuclear safeguards and security	88,816	89,516	+ 700
Security investigations	33,399	33,247	- 152
Subtotal, other Defense activities	468,112	553,605	+ 85,493
Emergency management (weapons)	17,336	20,056	+ 2,720
Subtotal, atomic energy	485,448	573,661	+ 88,213
Use of prior year balances	- 11,210	- 13,000	- 1,790
Congressional budget request	474,238	560,661	+ 86,423

The Nonproliferation and Verification Research and Development budget request for fiscal year 1996 reflects a slight increase. We recognize that reducing the nuclear danger is a vital interest to the United States and the Department of Energy has a critical role to play in that effort. However, we must balance these duties with the need to reduce government spending—even on high-priority items such as this. As a result, we have continued to increase the focus of our technology development program on detecting proliferant activities. We are also working toward eliminating duplication of effort between agencies and within DOE, improving coordination between sponsoring agencies, streamlining operations and generating a meaningful cost savings.

Overall, the Arms Control and Nonproliferation budget request increases by \$85.6 million, specifically in the following areas: materials protection, control and accounting including cooperative laboratory-to-laboratory and government-to-government programs with Russia for the establishment of effective Russian nuclear material security systems and export controls; cooperations with GAN, the Russian nuclear regulatory agency, to develop a nuclear tracking system; international security commitments of the Administration in the Newly Independent States of the former Soviet Union and in North Korea; the Industrial Partnering Program; development of high-density low enriched uranium fuel; and additional capital equipment for the laboratory-to-laboratory program.

The Intelligence budget request for fiscal year 1996 reflects a modest reduction from the previous year's appropriation. The request will provide for timely, high-impact analysis and reporting on the proliferation implications of selected nuclear weapons states' programs, emerging nuclear proliferants, nuclear suppliers, and global impacts to the U.S. energy security.

The Nuclear Safeguards and Security request shows a slight increase over the fiscal year 1995 appropriation. It reflects modest increases for technical and engineering support to field offices in the implementation of safeguards and security policies and procedures, modernization of automated office support at headquarters, and increased use of emerging technologies for enhancements to physical security and materials control and accountability capabilities which aid in reducing the overall costs of security. The increase also allows for accelerated review of technical classification guidance and additional training for derivative classifiers.

The Security Investigations budget request reflects a slight decrease as a result of reducing the numbers and levels of active security clearances by requiring the

employing office to provide full justification for each background investigation requested.

Finally, the Emergency Management budget request for fiscal year 1996 increases by \$2.7 million from the previous year. This increase reflects the intra-Departmental transfer of the Liquefied Gaseous Fuels Spill Test Facility and upgrades to the Department's emergency management system.

RECAP

The fiscal year 1996 budget request for the Office of Nonproliferation and National Security is \$86.4 million more than our 1995 adjusted appropriation. We have been conscientiously seeking new ways to provide greater services for less cost and believe that we can provide significant value-added programming in a cost-efficient manner. The 1996 request, if granted, will allow the Department of Energy to: improve the application of National Laboratory technical and analytical expertise to meet the nation's nonproliferation requirements; provide efficient, cost-effective safeguards and security; accelerate implementation of the Administration's openness initiatives; and provide integrated and coordinated response to incidents affecting departmental facilities or requiring departmental assistance.

Thank you.

BIOGRAPHICAL SKETCH OF KENNETH E. BAKER

Kenneth E. Baker was named Acting Director, Office of Nonproliferation and National Security, by Secretary of Energy Hazel R. O'Leary, on January 17, 1995. As Acting Director, Mr. Baker manages the Department's activities in the fields of arms control, nonproliferation, security affairs, energy intelligence, emergency management, and associated research and development. He also serves as the Senior Intelligence Officer in the Intelligence Community for the Department. Mr. Baker served as Principal Deputy Director from April 1993 through January 1995.

Mr. Baker has held a variety of key positions and responsibilities. From 1992-1993, he was Deputy Director, Office of Emergency Operations, U.S. Department of Energy, and served as Executive Assistant to the Senior Vice President for Command, Control, and Communications, Booz, Allen and Hamilton in 1992. Mr. Baker's military career included serving as Assistant Director for Plans, Operations, and Security, The White House, 1989-1992; Assistant Director for Strategic Operations, Office of the Secretary of Defense (1983-1989); SIOP Advisor to the President (1979-1983); and Chief, Missile Tactics Division, Strategic Air Command Headquarters (1975-1979). He held various positions within the Strategic Air Command from 1963 to 1975 and retired from the U.S. Air Force in 1992 with the rank of Colonel.

Mr. Baker received a Bachelor of Science Degree from the University of Louisville in 1963. He holds a Master of Business Administration from the University of Nebraska (1974) and a Master of Science in Psychology from Troy State University (1976). He has completed intensive study in National Security Policy at the Air Command and Staff College, and Strategic Planning and Operations Management at the Industrial College of the Armed Forces.

Mr. Baker was born in Louisville, Kentucky, and resides in Springfield, Virginia, with his wife Melissa.

NUNN-LUGAR FUNDING

Senator DOMENICI. I am going to just ask you one question. Then I am going to recess until about 10:30.

I think you asked for \$47 million additional money for your increase, for your lab-to-lab efforts. I might ask the two of you, Dr. Smith and Dr. Reis, is there any effort to try to use Nunn-Lugar money in the kind of things they are doing? Actually, what they did in this very short timeframe seemed to me to be the kinds of things we have anxiously been waiting to use Nunn-Lugar money for. I understand that finally there has been some movement in this program. I think you were probably more accurate and will testify more accurately than others that that program was in the ditch, to paraphrase Senator Hollings, for quite a while. But it is beginning to get out of that ditch. This kind of program, it seems to me,

should continue in an expedited mode whether we are able to provide additional money from a source they are speaking of or look to some other. Could you just comment on that first?

PROJECT SAPPHIRE

Dr. SMITH. I would be pleased to, Senator. Mr. Baker already commented on, I think, one of the great accomplishments in this administration of the cooperative threat reduction program: namely, Project Sapphire. He noted that 600 kilograms had been successfully transferred from Afghanistan to Oak Ridge.

Dr. REIS. Kazakhstan.

Dr. SMITH. Did I say Afghanistan? I am sorry, Kazakhstan. It makes a difference.

Senator DOMENICI. Yes, it does. I did not know there was any in Afghanistan.

TRANSFER OF NUNN-LUGAR FUNDS TO DEPARTMENT OF ENERGY

Dr. SMITH. I think that is a good demonstration of the cooperation that is taking place between the two Departments in that area.

Second, we have agreed, at the top levels of the Department, to transfer Nunn-Lugar funds directly to DOE for management, particularly in material control and accounting, as well as export controls. So that the work that Mr. Baker showed on those charts, we have moved to actually take advantage of good management and put the dollars there right from the beginning.

Mr. BAKER. We are in the process, sir, of right now getting \$15 million in fiscal year 1995 Nunn-Lugar money for material protection, control, and accountability [MPC&A] work. Then in fiscal year 1996, DOE is taking over this program completely from the Defense Department. The Defense Department will be out of the MPC&A. DOE will shortly do this work on MPC&A.

MATERIAL PROTECTION, CONTROL, AND ACCOUNTABILITY ACTIVITIES

Senator DOMENICI. Well, that is fine if we have enough money for the program. Who controls the Nunn-Lugar money? Is it the State Department, or do you?

Dr. SMITH. No, sir; I run it.

Senator DOMENICI. So we may be talking about there being DOE allocation sufficient to take over this work or whether Nunn-Lugar money can continue with some of the MPC&A responsibilities through the Department of Energy's laboratories. I do not know what you can do more effectively with the money, but maybe there are a number of things you can do with it.

Dr. SMITH. I think there are, but that is begging your important question. We are also—and I should check on this, Senator, and get back to you if I am wrong, but we are transferring DOD money to the DOE for this project in fiscal year 1996. We are doing it top of the line, that is, it is not coming out of the Nunn-Lugar allocation, but it is coming out of the DOD budget.

The next year, fiscal year 1997, it is my understanding, and again I should check, but it is my understanding that then we would expect DOE to begin to pay for these programs directly in

their budget. We did this, as you know, from strong congressional direction.

Senator DOMENICI. Well, the strong congressional direction did not have a lot to do with whether we would have enough resources, it was just an expression that the Department of Energy, being a nonmilitary operation, ought to be the one involved in this kind of activity. On the other hand, it is so effective and so urgent that the line between Defense and DOE is shady, and we ought to get the job done and not worry too much about which Department. We may have to get back to you specifically with reference to Nunn-Lugar money as the defense authorization proceeds to see if they might agree that some of it could be transferred to DOE in their reauthorization of it, but that would take some evidence from you all as to what damage that would do to your otherwise Nunn-Lugar plans, and I understand that.

Senator Reid, I had just told the witnesses—they have testified and we have only had one exchange of questions. We have a number of questions. I was going to recess until 10:30 and go to the floor.

Senator REID. I do not think anything is happening over there.

Senator DOMENICI. I have to go see Senator Dole, but I am glad for you to continue with your observations and questions.

Senator REID. I will just take a few minutes, and when I finish I will leave it subject to your call.

Senator DOMENICI. I welcome the efforts that Senator Reid has put forth in the past and look forward to his continued interest. He and I are very concerned about what happens to the safeguard program when we no longer do any underground testing. We are in that mode now, and that brings us to many of the issues that both of you have raised, and many of them are very dear to his heart because underground testing was conducted in Nevada. And we now know we have to spend a lot of money to undertake this new Science-Based Stockpile Stewardship Program to at least give the laboratory people enough credibility to certify that our weapons are safe and reliable. That is the issue.

Everybody thinks safety and reliability happens by accident, but actually people like Al Narath and the other directors of those laboratories have to sign that the weapons are safe and in every respect reliable. And they have certain requirements of a scientific nature that they must have before they will do that, and we cannot just abandon the underground testing and not substitute some new kind of science to give them the credibility and the reliability of those weapons. So that is what we are working together on, and I thank you for your efforts and I yield to you at this point.

OPENING REMARKS OF SENATOR REID

Senator REID [presiding]. Thank you, Chairman Domenici. As you walk out, let me on the record tell you how much I appreciate your openness and your cooperation which indicates that it is better to be nice to somebody when you are in the majority because you may not always be in the majority. [Laughter.]

Senator DOMENICI. Thank you very much.

Senator REID. I say that on my part because Senator Domenici and I worked together when we were in the majority, and he has been very kind since then.

Let me make a brief statement for the record that needs to be made.

We have had several years of declining support for our Nation's nuclear weapons program and the DOE national security enterprise, and I am satisfied and confident that the 1996 DOE defense budget shows an upturn in funding. I think that is important and critical to the country and to the world. I hope this is the beginning of a trend that represents a commitment by DOE to our nuclear deterrence and our nuclear confidence.

Dr. Reis, I would like publicly to acknowledge the role that you have had in this important endeavor. As I indicated with Senator Domenici, you have also been open and willing to discuss these issues, and I think that has made the work between the administration and the Congress much more meaningful.

Dr. REIS. Thank you, Senator.

Senator REID. I appreciate that. In my estimation you have provided the vision and the energy that has led to a stockpile stewardship program that is appropriate for the post-cold-war environment. Of course, there is a lot more to do.

In a number of conversations I have had with you it is clear that you understand the meaning of reducing the nuclear danger in this very uncertain world we live in. We cannot simply wish away these nuclear weapons that we have or that other countries have. We must retain an adequate, safe, secure, and reliable stockpile to assure our nuclear enterprise is second to none.

Dr. Smith, I am sorry that I missed your testimony, but I have someone here and we will talk about that in more detail. Counterproliferation is an issue that I am concerned about, and we need to be doing things to prepare for, again, this uncertain future.

Mr. Baker, I am sorry that I missed your testimony from the Office of Nonproliferation and National Security. I know that your office has conducted a number of experiments in the Nevada test site. I saw in the paper there was one being conducted today or tomorrow there. I do not know who is doing it, but there is a test being conducted at the test site. I am interested in reviewing your testimony in this regard.

TESTING

Dr. REIS. Senator, I believe that that experiment is being done today. KISMET is one of defense program's experiments as we try to ensure that the test site is ready to do its job if ever it has to in terms of the return to nuclear testing.

Senator REID. Well, I am glad to see that. One reason I am glad to see it is that work force there, it gives them an opportunity to test their skills, too, and I think that is important.

Dr. REIS. I think it is very important. It is not just the facilities themselves, it is the people, really, and I think that is a theme that you will see throughout our discussion in terms of the whole stewardship program. In some sense, it is the stewards, the people, who are really more important than a specific facility, or a specific item of equipment.

LABORATORY EXPERIMENTS

Senator REID. In reviewing your written testimony, and I am sure your oral testimony is comparable, you referred to the need for laboratory experiments. I presume that this is to clearly differentiate your program from our previous nuclear test program, and it is not meant to be taken literally, as all experiments inside laboratories or at the weapons labs themselves, is that correct?

Dr. REIS. That is correct.

Senator REID. For example, I assume the laboratory experiments would and could include experiments at site 300, or the Nevada test site.

Dr. REIS. That is correct.

Senator REID. Presidential mandate requires you to retain the ability to resume nuclear testing. Does this next year's budget request for the stockpile stewardship program support the 2- to 3-year requirement that you have for 1996 and beyond?

Dr. REIS. Yes, it does.

HYDRONUCLEAR TESTING

Senator REID. I do not want to take a lot of time, because we do have some things going on over on the floor.

Dr. Smith, you have stated that the Department of Energy and Defense are working hand-in-glove on your shared responsibility for a nuclear stockpile.

I understand, though, that the leadership of the two Departments disagree on the need for hydronuclear experiments as part of the experimental techniques required to assure the stockpile without nuclear testing in the standard sense, the classic sense. Would you state the Department of Defense's position on the need for hydronuclear experiments and other types of hydro tests that utilize special nuclear materials?

Dr. SMITH. Yes, sir; there are hydrodynamic tests which are above-ground tests that would be conducted at site 300 or the Nevada test site. I do not think there is any disagreement whatsoever between the two Departments. We would proceed. There are tests that can be conducted with an isotope of plutonium that does not fission. Those would probably be conducted also at the test site. They could be conducted above-ground, and we again would be in favor of that.

Whenever, though, there is nuclear fission involved, such as the so-called hydronuclear experiments, again, there is no serious disagreement between the Departments, other than what is the most appropriate very small yield that makes sense. Those positions are being debated in the executive branch, and the results of those debates are conveyed to our Ambassador in Geneva for the actual negotiations. The debates themselves are classified, and negotiating positions themselves cannot be discussed at this hearing.

Your point, though, is well-taken, and I and my staff, in conjunction with Dr. Reis' staff, will be most pleased to bring you up to date on the actual positions the two Departments have taken.

TEST RANGE FACILITIES IN NEVADA

Senator REID. Dr. Smith, you are aware, of course, that the test site in Nevada is adjacent to several Department of Defense test range facilities. Has there been consideration of these unique capabilities that this test range complex provides the Department of Defense for its counterproliferation activity?

Dr. SMITH. There is no question, sir, that the program is taking maximum advantage of the wide open, safe and secure areas in Nevada as we plan for these events. I think you know, sir, that under an ACTD, advance concept technical demonstration, we are thinking seriously of actually building the facility in the Great American Desert, which would duplicate facilities that we fear may be built by other nations in the area of weapons of mass destruction.

I am not up to date as to whether we have made a site selection for such a facility, but I can say that Nevada would be a very logical choice, and would be in the selection process. I do not think we have proceeded further than that.

Senator REID. This committee stands in recess subject to the call of the Chair. Gentlemen, we should know in just a little bit if Senator Domenici will be able to return to complete this hearing.

[A brief recess was taken.]

DEFENSE PROGRAMS BUDGET REQUEST

Senator DOMENICI [presiding]. The hearing will please come back to order. I apologize to the witnesses and to those who are here participating in this hearing. We could not do this any differently, so let me proceed with some questions.

My first questions are directed at you, Vic. The fiscal year 1996 budget request for the weapons activities increases by about \$300 million over the fiscal year 1995 level for a total of \$3.54 billion. Stewardship activities increased by \$142 million. Technology transfer and education increased by \$15.6 million, and the inertial confinement fusion program is up \$64.2 million. The budget within these categories supports major new initiatives including enhanced core stockpile stewardship effort; accelerated strategic computing initiative, \$45 million; the NIF, national ignition facility, \$61 million; and the neutron scattering facility, LANSCE, \$25 million.

For the first time, this budget is structured and focused on the nuclear stockpile strategic plan that tries to project the requirements that are needed to support the nuclear deterrent to the year 2010.

2010 STRATEGIC PLAN

Would you describe the threat that this budget and the 2010 strategic plan are designed to address?

Dr. REIS. Senator, I think the threat really comes directly from the nuclear posture review which was described, I think, in some detail by Dr. Smith. In the Department of Energy, we are the supplier, they are the customer.

I think in a broader sense what we are discussing is the fact that there still remain an enormous number of nuclear weapons around the world. Each of them is very dangerous. The discussion by Dr.

Smith, paraphrasing Secretary Perry in discussing leading plus hedging, describes it very well.

Harold, would you care to amplify?

Senator DOMENICI. These major initiatives are obviously important, and as people that have to budget and pay for them, it seems that we ought to discuss how these initiatives contribute to maintaining this nuclear deterrent.

Dr. REIS. I would be glad to do that. I think what is really different now, Senator, from the past is the ability to maintain the competence of the stockpile without testing. That is the major new thrust of what our program is all about.

As you described earlier, and Senator Reid described, that changes the focus of what we are doing. To do that, we have to understand a lot better than we have in the past how to maintain that stockpile without the ability to empirically determine what has changed in the weapons over time. That is the thing that I think drives much of what we are doing.

If you look out a little bit further in time, what you see is that those weapons themselves are getting older, and we are going to have to do something about replacing them or perhaps remanufacturing parts to maintain them. We expect that stockpile to be enduring beyond that time.

Much of the Stockpile Stewardship Program is beginning to also look at how does one change the complex itself in terms of different manufacturing techniques, model based manufacturing, and many of the agile manufacturing techniques.

So, it is really the ability to maintain that stockpile for much longer than we had anticipated without new designs, and the ability to do all this without nuclear testing. I think that is driving the new program that we have tried to put together for you.

NATIONAL IGNITION FACILITY

Senator DOMENICI. Specifically with reference to NIF, and advanced computing, could you describe how those will contribute to maintaining the nuclear deterrent?

Dr. REIS. Sure. The national ignition facility, of course, is a laser. If it is completed, it will be the world's largest laser.

Senator DOMENICI. What will it do, then, that underground testing does as far as competence and reliability?

Dr. REIS. What it provides is an understanding of the elements of the physics that go into some of the most important aspects of nuclear explosions. It is not a specific test in miniature at all, but what it does do is relate to the specifics of the physics that one would learn in a nuclear test.

It, also in large measure, maintains a really important cadre of people who are involved in the type of physics that is essential to maintain the competence of the nuclear stockpile.

Senator DOMENICI. Would you care to augment that, Dr. Smith?

Dr. SMITH. Dr. Reis has given a very good summary. I would make just a very few comments, Senator.

Senator DOMENICI. Please.

Dr. SMITH. First of all, I think he has emphasized the important thing on the NIF is that the physics are the same physics involved in a nuclear weapon. Therefore, by creating an exciting facility

which young physicists and engineers will participate in, we are in fact maintaining a cadre of people with a good experience base in the areas we are most concerned about.

Coming back to the NPR, again, Dr. Reis stated it correctly, we are aimed at a START II arsenal, but we are prepared to return to a START I arsenal if at any time we see a reversal in the trends that we now are measuring.

ACCELERATED STRATEGIC COMPUTING INITIATIVE

Dr. REIS. I do not think I answered the second part of the question, which has to do with the computing. That really does go to the heart of the problem as to how you deal with a stockpile without nuclear testing.

A lot of the issues, particularly having to do with safety, tend to be three-dimensional, while weapons tend to be designed symmetrically, and you can use two-dimensional effects. When you get bumps, cracks, and a little aging it shows up in ways that you just cannot solve those equations using the two-dimensional techniques, so we really are going to have to better understand those techniques. This is going to push computing, the ability of our current computing, and that means the software and all the things that go with that.

In the past, when we have had concerns about the stockpile, we have always been able to go underground and see what is happening. Now, if you will, that will have to be done by a bit of understanding of the physics and in tying all of that together essentially in the computer itself. It is really beyond our current capability.

DUAL-AXIS RADIOLOGICAL HYDRODYNAMIC TEST FACILITY [DARHT]

Senator DOMENICI. What will the DARHT facility do with reference to enhancing this capacity?

Dr. REIS. Well, as you know, the DARHT is currently in litigation.

Dr. SMITH. It is like Afghanistan.

Dr. REIS. Yes. [Laughter.]

Senator DOMENICI. You would like it to be under legislation, would you not?

Dr. REIS. I would prefer it at this stage of the game. The DARHT is the dual-axis radiographic hydrodynamic test facility which is a way of improving our hydrotest capability. That is where we implode a surrogate pit, and what that does is essentially take x-ray pictures during the implosion. It is very similar to your x rays, and with the DARHT, especially the dual-axis, we will be able to sharpen the resolution we get from those x rays and also begin to take it at two dimensions, very much like one might do with a CAT scan.

This represents, if you will, an advance, in the diagnostics of understanding what is happening during weapons explosions. That is particularly important as these weapons get older and older. Those of us who are getting older and older like to have the best diagnostic care we can, so it is with those weapons. Your staff, of course, does not understand that yet, Senator. [Laughter.]

Senator DOMENICI. Well, you are assuming I do. [Laughter.]

Dr. REIS. And I am looking at you directly. [Laughter.]

Senator DOMENICI. So you think I must. [Laughter.]

Dr. SMITH. But you are not beyond design life yet. [Laughter.]

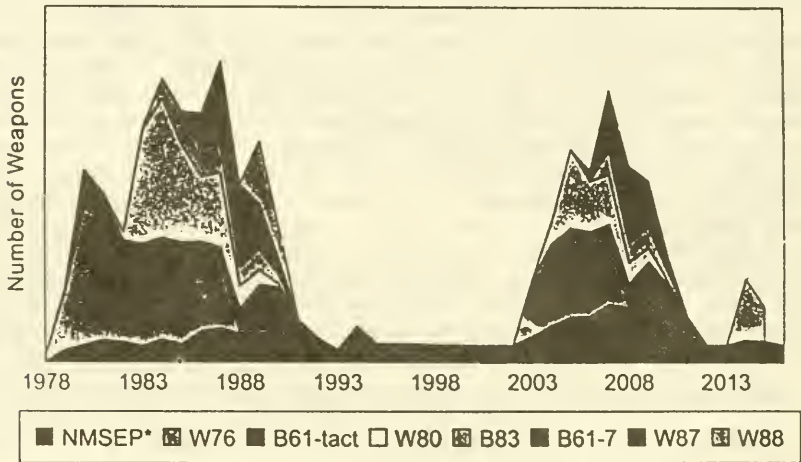
Senator DOMENICI. Well, that is sort of what this showing, right [indicating]?

Dr. REIS. Yes; it is showing that this is a problem we are going to have to face very soon.

Senator DOMENICI. We are going to put this in the record.

[The information follows:]

Rebuild Profile Assuming Design Lifetime



*NMSEP refers to the DOE flight and lab test program to assure the reliability of the stockpile

NUCLEAR WEAPONS REBUILDING PROFILE

Dr. REIS. All right. What this chart shows is that in approximately the year 2000, we will be reaching the design life of many of the weapons that are in our stockpile, and we are going to have to do something. We are going to have to understand those weapons better, and we will need to have the techniques available to be able to rebuild those weapons as needed.

Senator DOMENICI. Although much more complex, the truth of the matter is that a stockpile of nuclear weapons, of modern nuclear weapons to maintain the reliability, their safety, and other qualities that are necessary, they have a certain life, after which you have to redesign parts, and overhaul them and rebuild them just like you would a truck that wears out.

Dr. REIS. Just like you would a truck, except the nuclear weapon has many, many more parts, and many of those parts involve fissile materials which decay. It has a high explosive which has organic materials that change over time, and part of the effort is to understand that process a lot better and then be prepared to rebuild those in a cost-effective manner when we have to.

Dr. SMITH. Mr. Chairman, could I just emphasize your very good summary? Fabrication of the weapons as they wear out is of extreme importance. What you said was correct. I am simply emphasizing the importance of that point.

Senator DOMENICI. And all of that that we have been describing has nothing to do with building brand new nuclear weapons. We are not in that business at this point in our history.

Dr. REIS. That is correct.

NATIONAL IGNITION FACILITY

Dr. SMITH. Nor are we asking for such weapons.

Senator DOMENICI. Nor are you asking for them. OK.

The NIF facility we spoke about, what, \$62 million, \$61 million being in this year's request—what will it ultimately cost, if, indeed, we start it and complete it?

Dr. REIS. My estimate is about—

Mr. LANDERS. Just under \$1.1 billion for the total project cost. It is about \$843 million to build. Those are the construction costs.

Dr. REIS. That is right. The construction costs are about \$843 million.

Senator DOMENICI. It seems obvious to me that, if we need the NIF and the other three or four major initiatives to increase our diagnostic capacity with reference to what is going on in the nuclear warhead and the things that are part of it, that we must maintain a level of staffing within the three weapons laboratories that are going to be part of this science-based stewardship system.

I am very concerned that as we look at this for the next 5 years, which is what the President must put in his 5-year budget plan, I am concerned as to whether or not, if we proceed with big facilities like NIF, whether there is enough money built into those budgets to make sure we are not robbing Peter to pay Paul. We cannot rob the core program of science and research for a new facility when you need the basics for the overall plan. Could you just address that in terms of, can we afford these add-ons over time?

Dr. REIS. Sure. I think so, if we are going to have a successful Science-Based Stockpile Stewardship Program. I do not think we can afford not to have them. I think it is important to have these facilities to bring the people on. This is not old science we are dealing with. This is not just keeping people employed waiting to have something happen.

These are really very, very difficult and important scientific challenges. You do not get those challenges for nothing. You have got to have the facilities. You have got to have the facilities to have the people, and you have to have the people to work on the facilities, so it really does come together.

What we have tried to do, and what, I think as you pointed out, we are really doing is getting a start in fiscal year 1996 on making that direction, and we hope certainly, in the out-years to be able to follow up on all those promises.

Senator DOMENICI. Do you have any comments on that?

OUTYEAR FUNDING

Dr. SMITH. Yes, sir; I do. The budget that the Department of Energy has sent within the administration for the out-years that you

mentioned, Mr. Chairman, seems adequate, and just barely so, but there are strong forces outside of DOE which would reduce that amount by something approaching \$1 billion out of Dr. Reis' budget in the out-years. The DOD would be very concerned about such reductions for the reasons that you highlighted, Mr. Chairman.

IMPORTANCE OF DEPARTMENT OF DEFENSE-DEPARTMENT OF ENERGY RELATIONSHIP

Senator DOMENICI. Well, I think it is very important, since you have described the relationship between DOD and DOE as the customer and the supplier—or what words did you use?

Dr. SMITH. That is correct.

Dr. REIS. Yes.

Senator DOMENICI. It seems that it is very important that the Department of Defense make the case to the Defense authorization committees, in addition to this committee, that, in fact, we need to be doing this much, or the reliability certification is going to be—it may not happen or be in jeopardy next year, but over a 10-year span, a risk.

There is very little understanding among the population and in this Senate that this is a Department of Defense requirement. This is the nuclear weapons that require this, not the Department of Energy engaged in some kind of research. This is a big-time American requirement, and I think we have to collectively make that point. I am even willing to go before the Defense authorization committee and talk about the relationship of the two, and I might just do that if they would indulge me.

UNDERGROUND TESTING

The other thing that is very little known, and I think you are making an excellent case, and I think we have got to make it openly and publicly, when it was decided that we would have no more underground nuclear testing—and I disagree with that, but that is the President's prerogative. At this point, we do not have the votes to change that policy.

I think the very basis for these underground testing moratoria and agreements was based on a different era, a different age, and a different philosophical reason for doing it. I think that has all changed in today's arena, and it is now a question of, do you want to keep the weapons safe. Frankly people do not want to believe that.

But there are people who do not want any nuclear weapons. They say, we have gotten rid of one form of testing, now let's get rid of the next form. And do you do that, by not funding new scientific capabilities for tests that will keep the weapons systems safe. Without those means it is a means of getting rid of nuclear weapons. I think everybody should understand we are in big jeopardy if we do not go forward with this Science-Based Stockpile Stewardship Program which would insure the safety of our nuclear weapons and allow the labs to certify to the American people that our nuclear stockpile is safe.

CERTIFICATION OF STOCKPILE

You certified publicly before the subcommittee in a precise statement saying they are safe. Your testimony is the nuclear weapons in the stockpile are safe, right, and reliable?

Dr. SMITH. That is exactly right.

Senator DOMENICI. And that has to be done every year, right?

Dr. SMITH. That is exactly so.

Senator DOMENICI. We rely on it, and it is very important that you know it, and that DOE provide these services to keep the stockpile that way.

Dr. REIS. Senator, if I could follow up on that, we are trying to maintain these services so that 10 years from now, or 20 years from now—of course, that is beyond our design lives—those weapons will still be here. That is what stewardship is all about. It is not about today. It is about looking to the future to try to prepare the system to be able to answer those questions so that every year, as you pointed out earlier, the directors of the laboratories have to certify, and Dr. Smith and the Department of Defense have to accept that certification that those weapons are, indeed, safe and reliable.

Dr. SMITH. Mr. Chairman, with regard to your statement, I cannot improve on it. It is in the record, and it is a fine statement of our position.

Senator DOMENICI. OK. This morning, I spoke to a group of economists, and Dr. Alice Rivlin preceded me. For some reason that only the last 20 years brings into play, whenever she sees me she gives me a big hug, and I have to proceed to tell the audience that that is no indication that I work for this President, because his OMB Director gives me a hug.

I would also say, because I have described your position, I want the record to reflect that I do not represent the Department of Energy or the Department of Defense at this point, but I am very pleased at what you are doing in this regard, and I thank you.

TRITIUM SUPPLY

We have a number of other questions, but maybe I should move to tritium supply.

Now, tritium is important to enhance and maintain the capability of nuclear weapons.

Dr. REIS. That is correct.

Senator DOMENICI. That is not to make new or more powerful ones, it is to insure the capability of the weapons we have, is that right?

Dr. REIS. That is exactly right.

Senator DOMENICI. This tritium decays, what is it my staff says, about 5.5 percent per year?

Dr. REIS. They are accurate.

Senator DOMENICI. Staff is right, huh? They got it from you. That is why they are right.

Dr. REIS. At least we agree.

Senator DOMENICI. So obviously nuclear weapons have to be supplied from time to time on a recurring basis, usually, as we understand it, about every 10 to 12 years.

Dr. REIS. About every 12 years, of course, the tritium decay rate cuts down by a factor of 2. It is, I believe, about every 5 years they are actually resupplied.

Senator DOMENICI. So prior to 1988 tritium was produced at a DOE production reactor at Savannah River.

Dr. REIS. A nuclear reactor.

Senator DOMENICI. In 1988, that reactor was shut down?

Dr. REIS. That was shut down.

Senator DOMENICI. In 1991 and again in 1992, the President of the United States announced significant reductions in the nuclear weapons stockpile which eventually was the basis for canceling upgrades to the tritium production reactor and reevaluating the future tritium needs.

Dr. REIS. That is correct.

Senator DOMENICI. So that gave us some breathing room.

Dr. REIS. That gave us enough breathing room to think about what we wanted to do in the future.

Senator DOMENICI. Since 1991, DOE has been reevaluating its needs and how best to supply tritium in the post-cold war environment that we find ourselves in.

Dr. REIS. That is correct.

TRITIUM PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

Senator DOMENICI. What is the status now of the programmatic environmental impact statement on tritium?

Dr. REIS. We are releasing the draft environmental impact statement for tritium today, and we are planning a record of decision in November, and between now and November, the draft will be out for public comment. We will be holding the hearings around the country at the various sites.

At this time, we have indicated that there will be five potential sites, and we will be looking at four different technologies.

Senator DOMENICI. And that will all be done in due course, as you described?

Dr. REIS. That will be done. We mentioned in our fiscal year 1996 budget request, that we need funding to start that program in fiscal year 1996, but, of course, as you indicated, we are working on it right now as well.

TRITIUM REQUIREMENTS

Senator DOMENICI. When will tritium production be needed to meet DOD requirements?

Dr. REIS. They are really the DOD requirements. What we are working toward now, of course, are the numbers based on START II, which we get from the Department of Defense. Our estimation is that we have to start regassing, if you will, in about 2011.

Senator DOMENICI. And in the meantime, so the record reflects, we have tritium available.

Dr. REIS. We do, and to continue to resupply the weapons in the active stockpile. As we dismantle, we take the tritium out of the dismantled weapons, reprocess it, and supply filled tritium reservoirs to the Department of Defense for the active weapons.

DUAL-AXIS RADIOGRAPHIC HYDRODYNAMIC TEST FACILITY [DARHT]

Senator DOMENICI. Let me move quickly, then, to the DARHT facility and just ask a couple of questions. I understand that case is on appeal, is that correct?

Dr. REIS. It is under review between us and the Justice Department.

Senator DOMENICI. So the decision will be made based upon the best lawyers looking at what is the sense of balance in terms of seeking an appeal?

Dr. REIS. That is correct.

Senator DOMENICI. Is there any danger that the project would be delayed beyond the Department's record of decision?

Dr. REIS. Not as far as I am concerned, sir.

Senator DOMENICI. Would it be important to the national security if that project was not completed or significantly delayed?

Dr. REIS. I believe it would be very important. That type of facility, a high resolution, dual access, radiographic system is one of our premier diagnostic tools for the future. Again, we are going to have to do better in the future than we are doing now, because we are dealing with weapons that are beyond their design life.

SOVIET NUCLEAR MATERIALS SECURITY

Senator DOMENICI. Now another subject, we read and see how poorly the Soviet Union has maintained security, and we are very, very pleased with that small amount of money doing such a big job. Did you see the long New York Times article about smuggling of radioactive material. It was said to double.

I am not going to read it, but it certainly shocked a lot of people, and shortly thereafter, I guess, on February 24, we see where Russia ordered some tightened security procedures with relation to their special nuclear materials. Now, we go through such elaborate, expensive, and scientifically sound efforts to keep our weapons safeguarded in terms of reliability and the like, and we know the Soviet Union is not doing a very good job of protecting their materials and facilities. I understand uranium was found in an open locker, is that right?

Mr. BAKER. Yes, sir.

Senator DOMENICI. People could be walking around with some of that in their pockets.

Mr. BAKER. In a lunch pail.

Senator DOMENICI. It was not only that part that I am asking about, but are they going through the same kind of elaborate analysis with reference to refurbishing and keeping their weapons safe as the design life is exceeded? Do we think that is credible?

Dr. REIS. [Nods.]

Dr. SMITH. Mr. Chairman, let me address the weapons side, or perhaps defer to Mr. Baker to discuss the fissile material side.

Senator DOMENICI. And if there is something you cannot talk about we will be glad to have a closed hearing.

WEAPONS SECURITY IN RUSSIA

Dr. SMITH. Very well. The weapons are under the control of General Maslin, who is my counterpart in Russia. I deal with him on

a personal basis both by telephone and in person when we are in each other's country.

Admiral Chiles is CINCSTRAT and his Russian counterpart is General Sergeyev. Admiral Chiles and I discuss this matter often, and we are rather impressed with the thoroughness and the professionalism with which the Russians are taking care of their weapons. They are dismantling, and we are assisting them from the point of dismantling through to the transport of those weapons throughout their complex.

Their troops more than any other troops seem to be well taken care of.

Now, I am not saying that there are no problems, but I feel much more comfortable with regard to the way Russia is handling its actual weapons and the transport of those weapons, even the components from the dismantled weapons, than I am about how they handle the special nuclear material, the material that comes out of the plutonium production reactors, for example.

That is one of the reasons why we are most pleased to transfer Nunn-Lugar money to DOE. DOE has far more experience with the material than we have, and DOD, of course, has far more experience with regard to the weapons. It seems to be the right breakdown.

So, I have taken the easy side of your question.

NUCLEAR MATERIALS SECURITY IN RUSSIA

Mr. BAKER. From the nuclear materials side, we are very concerned and would like to submit a paper to the committee. We had the intelligence community rate the facilities in Russia as far as risk goes. What are the risks of those facilities? There were 80 of them listed. I would like to show you the criteria that we used, and the facilities that we used. We are very concerned.

We need somehow to protect the nuclear materials at their source. We need somehow—and it is beginning right now, as you saw, and the newspaper article you mentioned, to start an indigenous program by the Russians to make sure they know how to protect this special nuclear material.

We are finding out that they really do not, on nuclear materials, and what we have seen so far and what the intelligence community has come up with would be very frightening to the American public, so it is a program that we are very concerned about. It is a program we are working hard on, and a program that we are working very closely with the intelligence community on. I would like to submit a classified paper to the committee on that very subject.

Senator DOMENICI. Do that, and be sure when it is received that I get it in a manner that it does not get around. I would like to read that sometime.

I think it is important that some of us begin to focus on that. Not that this subcommittee has all of the jurisdiction to supply the money, but sooner or later, we will have to get more involved in the issue.

Mr. BAKER. One of the things, Senator, that I may mention, DOE took the lead on a national intelligence estimate which was blessed by the intelligence community on securing nuclear weapons in Russia, and again, that all started this material protection and ac-

countability weakness that we found out about and we are discovering more every day on how bad it is.

EXPANSION OF DEPARTMENT OF ENERGY'S ROLE IN THE MATERIAL PROTECTION, CONTROL, AND ACCOUNTABILITY ACTIVITIES [MPC&A]

Senator DOMENICI. To the extent the DOE's role expands, that would be of concern to this subcommittee, because I assume ultimately the money is going to be appropriated here, and we have to make sure that the administration, after you do the research, is focusing sufficient resources where most critically needed.

Mr. BAKER. Yes, sir.

Senator DOMENICI. There is a tendency to put resources of this type in various places in the Government. Then the agencies do not talk for 3 or 4 years, and pretty soon they start talking and find out they are duplicating their efforts or have left some things out. I do compliment you on working together far better from what I observed in the past than heretofore, and that is a compliment to all three of you.

Now, that is the MPC&A. That is a critical item, in your opinion.

Mr. BAKER. Yes, sir; that is critical for us.

FOCUS AT LABORATORIES

Senator DOMENICI. I note we were having a hearing on the mission and structure of the national laboratories and the Galvin Commission yesterday, which does not necessarily concern these subjects, but obviously to some extent impacts what these labs will be involved in and what is going to make them more efficient.

A question was brought up which I direct to you, Mr. Baker, by Senator Kerrey of Nebraska, the ranking member on the Intelligence Committee, that there is some indication that maybe in the area of nuclear materials, worldwide, that maybe there ought to be a focus in one of the laboratories, or one institution, so that everything is focused and understood in one place, even if some activities are being done in many other areas.

Now, I am not up on the central intelligence issues or that committee's thinking, but is this something you are aware of, and what do you know about this?

Mr. BAKER. Well, we are not there yet, but we just started a national security division at Los Alamos. They are looking at all of this under Steve Younger, and Mr. Younger is looking at the Iraq situation, the Iran situation, North Korea, Russia, China, and Pakistan. It is a national security area that Dr. Hecker just started.

It is getting there, sir. I think that is a good idea, to do something like this, but we have started something like that. I am not saying we are there yet, but we have started this under Steve Younger at Los Alamos at the present time.

Senator DOMENICI. Is he a special expert in this area?

Mr. BAKER. He has people with him that are special experts in this area. Mr. Luongo, do you want to add anything to that? This is Ken Luongo of DOE's arms control office.

Senator DOMENICI. Can you add anything to this?

Mr. LUONGO. I would just say on the material protection control and accounting, we have a big lab, which is Los Alamos, where all

of the resident expertise is fed into, though there are a number of other laboratories that are involved in the process.

COUNTERPROLIFERATION

Senator DOMENICI. I want to thank the Department of Defense and the Department of Energy for the big meeting on counterproliferation that was held at Los Alamos at my request. That meeting ultimately brought a request by the Department of Energy for some additional funds which I will inquire about just in one moment, Dr. Smith.

But obviously what I did not see evolve, and you are now discussing it, is in the evolutionary stage but reaching some finality of focusing the counterproliferation effort more in one place, so that there was not duplication of effort.

What we came out of that other summit with was additional money, right, to start the process of doing a better job.

Dr. SMITH. That is exactly right.

Mr. BAKER. We are working on counterproliferation very closely with the Defense Department to make sure that the R&D that we have already done in nonproliferation is transferred over to the counterproliferation area.

We are going to work very closely with Bill Schuler and the people that work for Dr. Smith to ensure that there is—as you know, a memorandum of agreement between John Deutch and Charlie Curtis on this, and that is working very well with labs getting money to help us make sure that we are not duplicating effort, things that we have done already on nonproliferation, that we transferred this over to the counterproliferation area also, so that is working very well.

Senator DOMENICI. Actually, I see counterproliferation for the United States as an effort very much akin to putting all the scientists together and trying to design the atomic bomb. That is one era. The era now is to try to prevent the kind of proliferation that comes from nuclear weapons or chemical and biological weapons, and that is a whole new science.

It is obvious that if we apply the right resources we can gain substantial information on what others are doing in the world with reference to these dangerous activities. Then the military can be much better prepared in the event this is used, the chemical or biological, or nuclear, and both of these come under the rubric of counterproliferation, which is an evolving sort of thing.

Nonproliferation we sort of understood for a while. There are some crossovers. I assume there are some common points, are there not, common needs, common technology. Perhaps, Dr. Smith, you could tell us where we are with reference to the status of the counterproliferation in 1995, and what are the plans in the 1996 budget?

Dr. SMITH. It would be a pleasure, Mr. Chairman. First of all, I want to hark back to the Senate conference and express my thanks and the thanks of my colleagues for the wonderful job that you yourself did, and I want to remind you that we will have another summit conference in late May, and we very much want you and your staff to participate again.

Senator DOMENICI. Where is that going to be?

Dr. SMITH. It is in a place called Albuquerque, sir.

Senator DOMENICI. Oh, good. It is a little bit off the Hill this time?

Dr. SMITH. A little bit off the Hill. Thanks to that conference and the support of the Congress and the good work we have been doing with DOE, we added \$60 million in fiscal year 1995 to the counterproliferation program that Dr. William Schuler, under my direction, put together. Dr. Schuler deserves particular credit for his ability to get the operators, the actual commanders, involved.

Our attempt there was to make sure that if there were any gaps in counterproliferation, just as you noted, sir, that we fill them. We prioritized them, and we are funding them.

CHEMICAL AND BIOLOGICAL WEAPONS

I will not take up your time here to give you the entire program. I will simply mention the two top priority items. The first, you have already indicated, is we cannot overlook in the new era chemical and biological weapons. We have very limited capability to detect such agents at a distance of even tens of kilometers. We must develop them. We are looking, not surprisingly, to the DOE laboratories, because of their creativity to resolve that for us. That is the No. 1 part of the 1995 program, and that will continue on into 1996.

The other area we are emphasizing very strongly is the fact that the powers that we fear are going underground so that buried facilities are becoming ever more a concern. We must have the ability to find them, attack them, and yet not spew chemical and biological agents or plutonium around the landscape. That gets very, very high priority.

In fiscal year 1996 we are asking the Congress for an additional \$108 million which will continue the effort I have just described, and I could give more detail there at your convenience, sir.

Senator DOMENICI. OK. Vic, would you describe in your way briefly how you see this program proceeding?

Dr. REIS. Well, let me turn it over to Ken, because that is really being coordinated within the nonproliferation area.

Mr. BAKER. I agree with Dr. Smith, sir, there is a long way to go in biological and chemical.

As you know, by law, DOE has not gotten into biological and chemical. We are just the nuclear side of the house, and there is a long way to go in that area. The nuclear is pretty well along, and we are working very closely with Dr. Schuler, as I said, with our laboratories.

As Dr. Smith mentioned, \$60 million has been put into the program, but the real concern is how do we get to this chemical and biological threat? That is a real concern, and we are just scratching the surface in this area, and we need to do more.

Senator DOMENICI. Where is the jurisdiction for chemical and biological threat at this point? Who has the line-item authority programmatically?

Dr. SMITH. There is no question that that is my responsibility, sir.

Senator DOMENICI. DOD's?

Dr. SMITH. Yes.

I want to emphasize, Mr. Chairman, that the additional moneys that we have asked for ride on top of about \$300 million that have been identified Governmentwide that can properly construe themselves as counterproliferation.

Senator DOMENICI. Yes; I should have mentioned that. I failed to. Actually, the \$60 million is not in the program, but actually the \$300 million is spread around, and it took a little doing to find that number to get it assimilated so that when we went to the summit we knew what America's effort was, but it clearly was not consolidated and coordinated, and I am hopeful it is getting better.

Dr. SMITH. It is.

Senator DOMENICI. I am very concerned, because I think a lot of emphasis is put on the nuclear threat. It should be, but essentially, it also is the one that we know the most about and can do the most about. The other two are very, very dangerous, and we do not know, in the counterproliferation area, enough yet to do much about it. The chemical and biological threat could affect troops, could they not?

Mr. BAKER. Yes, sir.

"60 MINUTES" REPORT ON SOVIET WEAPONS SITUATION

Senator DOMENICI. It is not insignificant.

I just have one question with reference to the Soviet Union, then I want to talk about dismantlement procedures for weapons being retired from the stockpile.

I am hopeful that, if I can take a trip here, I will take it to the Soviet Union, because there are a lot of things that I should see, since we have been very involved with our laboratories and the kind of work we have discussed here. It is amazing to find our DOE laboratories have such a high reputation with their counterparts in the former Soviet Union. Maybe it is because they were such great enemies that they have become great friends. It would be a pleasure to go over there with them.

But I, interestingly enough, learned a lot about the Soviet nuclear weapons situation from "60 Minutes", which is not very reliable, I gather. I have submitted a request to the Department of Defense for them to look at that "60 Minutes" program and give us their opinion of what was said. Essentially, they had Americans at the site of one of their major nuclear weapons centers where they actually carry out the command and control.

"60 MINUTES"—NUCLEAR SUBMARINES

A couple of things. One, which was startling to me, was a big map up there and they said, see what we have done for you up there, and, of course, "60 Minutes" took pictures of it. We have shown you where all America's nuclear submarines are. So if you think we do not know, there they are.

Well, I have asked, do they really know, so we will be getting an answer there pretty soon.

WEAPONS AIMED AT UNITED STATES

Then they showed how they handle the control and command. Somebody asked, well, we understand that you have no longer

aimed these weapons at the United States, and the reason that was very interesting to me was because the President had made his speech to the country and had said what a great achievement that weapons were no longer aimed at the United States.

And somebody said well, what does that really mean, General whatever his name is—

Dr. SMITH. I would think Sergeyev would be the Russian.

Senator DOMENICI. It might have been. They said, what does that mean, General? And he said, it only means that if we want to aim them at the United States, it will take us 6 minutes to redirect them.

Now, I am not at all sure that the people in the country who received such wonderful assurance from the President that they were no longer aimed at us would have felt so great if there would have been parenthesis after that statement; however, it will take them only 6 minutes to reprogram them and aim them at us.

DISMANTLEMENT

But they are dismantling and we are dismantling. I presume, even though we are not quite on schedule in terms of our goals, that they are not either. Is that a fair statement?

Dr. SMITH. We do not have a good answer to that, Mr. Chairman. Intelligence just is not perfect. In my discussions with the Russians, they assure me, and I tell them that I am most eager to see their evidence, that they are actually dismantling at a rate faster than ours. We shall see.

General Maslin, as I mentioned earlier, my counterpart, will be visiting America about mid-April, and I would very much like, sir, for you to take some time and meet with him personally, and then you can have the same building confidence that I have.

Senator DOMENICI. I think that is important, but I do think there was no reason 10 years ago to wholeheartedly trust the Russians. You know, I do not know if all of a sudden we should build this entire evaluation upon trust.

Dr. SMITH. We certainly are not, but it is one more important input.

Senator DOMENICI. OK, and they are indeed letting us see a lot more than we ever saw before, so we get some deductions from that.

Dr. SMITH. Yes, we are, but we want to distinguish between, we see them dismantle a strategic vehicle. Now, what happens to that weapon is much harder to see.

Senator DOMENICI. Could we quickly discuss the dismantlement program, especially as it relates to schedule, any delays to meet START I and START II levels, and what agreements or understanding DOE may have or has entered into that impact on the storage of plutonium pits removed from the dismantling weapons?

WEAPONS DISMANTLEMENT AND PLUTONIUM PIT STORAGE

Dr. REIS. Yes, sir; so far this year we have dismantled 632. We expect to finish about 1,400 by the end of this year. We hope to do about 2,000 in fiscal year 1996. About 2,000 is our maximum annual rate that we feel we can do safely.

We have had some delays, it turns out, as you might expect. Taking these weapons, particularly older weapons apart is a very complex process.

Senator DOMENICI. Sure.

Dr. REIS. Especially the more exotic weapons that were built, and we are leaning over backwards to make sure that things are done safely. I think it does not quite capture the real concerns we have about safety. We have run into a problem with the W-48, and we think we know our way around that problem right now, so we expect to be back on track with it.

In terms of storage of the plutonium, as you know, we have an agreement to be able to store up to 12,000 pits in temporary storage at Pantex. We will have the environmental impact statement for that done prior to that time. So at this stage of the game, we do not anticipate any problems in terms of dealing with the plutonium situation.

VISIT TO RUSSIA

Senator DOMENICI. I will have a couple of written questions. Did you have anything on that, Dr. Smith?

Dr. SMITH. First, sir, I wanted to go back to your initial comment, your earlier comments on your desire to visit Russia. I want to say for the record how helpful in the Nunn-Lugar Program congressional representatives have been. Congressman Browder and Congressman Lancaster in particular played important roles.

If you could find the time, we would be delighted, and I think it would be in the best interests of the program for you to come, so consider this a formal invitation.

Senator DOMENICI. Does that mean you take me, or I take you?

Dr. SMITH. We take you.

Senator DOMENICI. Oh, that is good.

ACCIDENTAL LAUNCH

Dr. SMITH. Second, with regard to your statement on accidental launch, I understand your point, but I think we should also recognize that the fact that we are not targeted, if we believe them, means that we are much safer from accidental launch, from unauthorized launch, and that is an important step.

Senator DOMENICI. Sure. I should have said that if properly explained the gain and advantage is not an advantage for the dedicated, committed Russians who want to attack America. The gain is for some accident occurring, in which event the weapons apparently would strike nothing on the Earth, the way they claim they are targeted.

This chart [indicating] shows 1995 dismantlements at 1,396.

[The information follows:]

ACTUAL & PROJECTED DISMANTLEMENTS



DISMANTLEMENT SCHEDULE

Dr. REIS. That is close enough. We have 1,400.

Senator DOMENICI. You have 1,400. Then you expect 2,000 in the next year, is that correct?

Dr. REIS. That is correct.

Senator DOMENICI. Do you think you can meet that schedule?

Dr. REIS. I think we can meet that schedule. Again, in the past, that has been our schedule for some time, and we have not quite met that. As you see, we are at 1,400, because glitches show up and we do not know yet what will happen until you actually try it. Again, I think the system there is working well.

Pantex has done an excellent job in doing those dismantlements, but we are dealing with a lot of very, very different kinds of weapons. There are no guarantees, but I certainly think we can meet that schedule.

GALVIN REPORT AND THE DEPARTMENT OF ENERGY LABS

Senator DOMENICI. My last question is directed at the Department of Defense with reference to the Department of Energy's laboratories.

I would assume that the Department of Defense would be concerned about the Galvin Commission report, a group of good citizens from very diverse backgrounds who came together in some rather miraculous way to agree on a number of things, considering their backgrounds and feelings on nuclear weapons, but their conclusion has to do with the national laboratories being so micromanaged and overregulated by the Department of Energy that they are very inefficient. They also imply that the best talent is not capable of doing what the lab says it should be doing, because they cannot manage the work of the great scientists.

Is it fair to assume, without laying blame on anyone, that the Department of Defense is worried about that also, Dr. Smith?

Dr. SMITH. Sir, I had considerable experience with the laboratories before I entered Government, and certainly I have worked with them since.

To my mind—and you said earlier, and I agree, that these are the most exciting laboratories in the world. I think that is true today, and I think under the program that Dr. Reis has set forth that will be true in the future.

Senator DOMENICI. We hope.

Dr. SMITH. Are they micromanaged? It is hard for the Department, and I am not even sure it is proper for the Department of Defense to tell the Department of Energy how to manage its laboratories, but we do put a considerable amount of Department of Defense money into those labs because of their creativity, and we have not been disappointed with the results.

Senator DOMENICI. I will note, if the Galvin report is anywhere right you ought to be interested, because it is their indication that because of the micromanagement, which they claim is so prolific that they have never seen anything like it. They direct attention to the more than 50,000 separate regulations forthcoming from the Department of Energy to the DOE laboratories. This is an impact on the future of the labs. Books of regulations piled on end, many

which are contradictory and inconsistent. Frequently the laboratories are unable to answer questions because they find constantly changing rules, many that they are not even aware of.

Dr. SMITH. Mr. Chairman, we take those laboratories and the Galvin report very seriously.

CLOSING OF KIRTLAND AIR FORCE BASE

Senator DOMENICI. Well, I hope somebody takes the Galvin report seriously.

My last comment, and I do not expect any of you to necessarily respond, it probably is not within your territory at all, Mr. Baker, but let me say one of the most serious problems that I have found with the U.S. Air Force recommendations to close Kirtland Air Force Base is what I perceive to be a total lack of understanding about what goes on at Kirtland regarding defense nuclear activities, particularly DOE's synergy with the Department of Defense nuclear weapons activities at that site.

I am further disturbed when I find not only was it apparently not taken into consideration, but that at the last minute, only upon being prodded by the congressional delegation, was the Department of Energy even consulted and asked about the closure of Kirtland.

Needless to say, I am not one who would be against base closures. But I am very, very concerned that the security infrastructure we have built over decades to protect defense nuclear activities and our nuclear weapons systems at Kirtland and around a military base is essential. It just so happens that the U.S. Air Force, by coincidence, overseas a big, big compound, 62 square miles, called Kirtland Air Force Base. The Air Force, was not very much of it, yet they were the ones designated to determine whether Kirtland should be closed.

I find very interesting that of all the bases to be closed, the least cost-benefit ratio of any is Kirtland. In fact, it is so small that in many instances the dollar saving versus the new expenditures, which are somewhere around 1 to 1, that in many of them they are 17 to 1, or 5 to 1, or 4 to 1. I fail to understand how, after all of this work that goes on between DOE and DOD relative to nuclear weapon activities—though I would note for the record there is nobody here from the U.S. Air Force, which is very interesting, because they are the ones who made the decision to close this facility—frankly, it would seem to me that DOE should have been consulted and informed of this proposed early in the process.

Now, I know belatedly you were asked, Dr. Smith, and in the last days you were involved, as well as Dr. Reis. But, I stand on the statement that the Secretary of Energy was not asked for a recommendation—and if they were asked they were asked on Friday past or Saturday, and I am not going to ask you to spread on this record what you recommended, and whether my statement about you is correct. But I will state that I am pretty close to right.

And I should probably add that much concern was expressed by the Department of Energy about this closure, and a great deal of concern came from within the Department of Defense itself regarding defense nuclear activities and the overarching security and well-being of the community of Albuquerque. It is critical to have a military base surrounding this facility where much of what we

talk about here is taking place—stabilizing the weapons, storing them, all kinds of things that relate to do with nuclear weapons activities at these great laboratories.

So, I will close and say on March 14 at 9:30 we are going to review the DOE's Office of Energy research budget.

Dr. REIS. No problem.

ADDITIONAL COMMITTEE QUESTIONS

We will submit the balance of the questions for response in the record and give you 2 weeks to get your answers back to the written questions that we give you.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY SENATOR DOMENICI

Weapons Activities - Overview

Question: What minimum level of funding, on an annual basis, will be required for Weapons Activities to maintain confidence in the nuclear stockpile?

Answer: Our preliminary cost analysis suggests that in the absence of ongoing efforts to reinvent the way the Department of Energy operates, the Stockpile Stewardship and Management Program would require increased funding after FY 1996. The Department's National Security Five-Year Plan, which was based on the assumptions used in preparing the FY 1996 budget, projected that without reinvention, funding requirements for the Stockpile Stewardship and Management Program would rise from \$3.6 billion in FY 1996 to about \$4 billion by FY 1998. The Department is, however, aggressively changing the way it does business. It is anticipated that implementation of the Strategic Alignment Initiative, improvements in the rule-making process, streamlining the workforce, and continuing the implementation of the Contract Reform Process will help us reduce outyear budget requirements.

Question: Do the Department of Energy's budget planning targets support the 2010 Strategic Plan?

Answer: The Department is still in the process of refining and finalizing a 2010 Strategic Plan.

Question: Over time, will this confidence erode, and how do we address those factors?

Answer: Without the Stockpile Stewardship and Management program, confidence in the stockpile will erode over time. The rate at which confidence erodes is impossible to predict. The current DOE Stockpile Stewardship program is designed to maintain confidence in the stockpile by replacing the historic role of integrated nuclear testing with enhanced understanding of fundamental weapon science, expanded nonnuclear experimentation capability, and enhanced computer performance prediction (virtual testing).

Question: Is the nuclear weapons stockpile safe, secure, and reliable?

Answer: The nuclear weapons stockpile is currently safe, secure, and reliable. The Stockpile Stewardship and Stockpile Management programs include enhanced stockpile surveillance activities to identify at the earliest opportunity any potential changes that could affect this status.

Question: How does the FY 1996 budget request enhance the safety, security, and reliability of the nuclear stockpile?

Answer: The FY 1996 budget request provides funding for surveillance and maintenance of specific stockpile weapons; development and implementation of modifications to improve the safety, security, and reliability of active weapons; and

timely retirement and safe dismantlement of older weapons as we build down the national stockpile. The FY 1996 budget request also supports the maintenance of a viable, technically challenged laboratory complex capable of observing the stockpile and responding with timely, cost effective solutions to stockpile problems and/or needs. Funds are also included to support some limited production capabilities that are essential to support the laboratories' efforts. These areas represent the foundation upon which enhancements to the safety, security, and reliability of the stockpile are built. The FY 1996 budget request halts the downward trend in both these areas that has occurred over the past several years.

Question: Can a viable nuclear weapons deterrent be maintained if there is nonnuclear testing or no new weapons development?

Answer: The Stockpile Stewardship Program, if adequately funded, is intended to protect capabilities and provide a suitable nuclear weapons deterrent. The President has directed the DOE to maintain a readiness to test if the situation changes.

Question: Does or will the Stockpile Stewardship program envisioned in the 1996 budget allow the weapons labs to certify each systems capability and performance?

Answer: In 1996, we believe it will. This is because a relatively short period of time has passed since the end of nuclear testing, and we have not identified any issues that may adversely affect the laboratories ability to certify the enduring weapons stockpile. In the future, as the stockpile ages, and as issues arise with stockpile weapons, the enhanced capabilities identified in the Stockpile Stewardship program will be required to certify weapons in lieu of nuclear testing.

Weapons Activities -- Overview

Question: Does or will the Stockpile Stewardship program envisioned in the 1996 budget allow the weapons labs to certify each system's capability and performance?

Answer: Certifying the capability and performance of each weapons system is a multi-year process. The FY96 Stockpile Stewardship budget request is barely sufficient to meet the requirements that the DoD communicated to DOE in the Nuclear Posture Review and the Nuclear Weapons Stockpile Memorandum. Funding requests in future years must continue this essential activity.

Question: How do you assess the focus and direction of DOE's nuclear weapons budget?

Answer: I am pleased that we have reversed the declining trend of previous years. The budget for Weapons Stockpile Stewardship (WSS) is greater than the FY95 budget, with most of the increase for new initiatives that are crucial to the Science Based Stockpile Stewardship (SBSS) and Stockpile Management programs, which are important to us. Future budgets must increase to fund sufficiently areas of particular interest to DoD such as demonstrating refabrication of existing warheads and enhanced stockpile surveillance, as specified in the Nuclear Posture Review.

Question: Discuss the Nuclear Posture Review, its status, conclusions, and recommendations.

Answer: The Nuclear Posture Review (NPR) was developed and completed by representatives from the Joint Staff, the CINCs, the Services, Defense Agencies, and the Office of the Secretary of Defense. It was briefed to the President and released in September 1994. The NPR findings note that the US has carried out a 47% reduction of strategic nuclear warheads and 90% reduction of non-strategic warheads in the active stockpile since 1988. The NPR specifically states the following DoD requirements of DOE in the absence of nuclear testing and design of new weapons:

- develop stockpile surveillance engineering base;
- demonstrate the capability to refabricate and certify weapon types in the enduring stockpile;
- maintain the capability to design, fabricate, and certify new warheads;
- maintain the science and technology base of the stockpile;
- ensure tritium availability.

In defining the force structure of the future, the NPR is a watershed document for identifying the form and function of the nuclear Armed Forces as we head into the next century.

Question: What are the critical issues and concerns from DOD's perspective?

Answer: DoD must be able to assure the President and the country, now and in the future, that the US stockpile of nuclear weapons is safe, secure, reliable, and meets the requirements of the Military Services. To achieve this goal, DOE must implement a stockpile stewardship program and develop a new source of tritium. DOE must meet all requirements of the NPR and the Nuclear Weapons Stockpile Memorandum.

Question: What does DoD perceive to be the capabilities which must be retained at the nuclear weapons labs to sustain the Nation's nuclear deterrent?

Answer: The laboratories must be able to ensure DOE, and ultimately DoD and the President, that the enduring stockpile of nuclear weapons is safe, secure, and reliable. The Science Based Stockpile Stewardship (SBSS) and the Stockpile Management programs are important aspects of a robust plan to ensure these qualities are maintained. Specifically, the labs must be able to demonstrate the capability to refabricate and certify weapons in the existing stockpile and maintain the ability to design, fabricate, and certify new warheads, should that become necessary. An efficient nuclear weapons staff at the DOE labs must be challenged on a continuing basis to assure stockpile confidence.

Question: Does the DOE budget for FY 1996, in your judgment, meet and sustain capabilities at an adequate level?

Answer: The FY96 budget will marginally maintain an adequate level to sustain crucial capabilities. It is imperative that functions such as refabrication and certification of weapons in the enduring stockpile, enhanced surveillance, and weapons design capabilities be fully funded in any budget.

Question: Is DoD looking at the future development of new weapons? If so, what types, and when will those be needed?

Answer: As delineated in the Nuclear Posture Review, the DoD has no current plans for new nuclear warhead design or development but insists that DOE demonstrate the ability to refabricate warheads for replacement of the existing stockpile. The DoD requires that the DOE maintain the capability to design, fabricate, and certify new warheads.

Stockpile Maintenance, Evaluation and Technology

Question: Explain why, even though the overall core Stockpile Stewardship program is up 10% over FY 1995, funding for these critical programs which insure the safety and reliability of the enduring stockpile continue to go down?

Answer: We have not reduced funding for programs critical to stockpile safety and reliability, but have shifted the funding for some of them to in the Core RAT budget in FY 1996 where the work is more properly described. Much of the laser work covered under Stockpile Maintenance, Evaluation and Technology in FY 1995 is included in the Core Research and Advanced Technology (RAT) Physics section in FY 1996. Also in FY 1996, the Los Alamos Neutron Scattering Center (LANSCE) surveillance activities related to the enduring stockpile begin; but, they are covered under the Design Assessment Science and Technology-Physics section of Core RAT as well.

Question: In your judgment, will the requested funding level allow for continued advancement and improvements of safety and reliability of the stockpile?

Answer: The funding requested for Stockpile Maintenance, Evaluation and Technology is based on our plans for maintaining the reliability and safety of the stockpile. The funding request is adequate to meet this objective.

Accelerated Strategic Computing Initiative

Question: Discuss the Accelerated Strategic Computing Initiative, specifically what you hope to achieve and the benefits to the nuclear deterrent of the U.S.

Answer: The Accelerated Strategic Computing Initiative (ASCI) is a balanced program to extend DOE/DP computational capability. ASCI's vision is to shift promptly from nuclear test-based methods to computer-based methods. ASCI will create the leading-edge computational modeling and simulation capabilities that are essential from maintaining the safety, reliability, and performance of the U.S. nuclear stockpile and reducing the nuclear danger.

To realize this vision, ASCI will create computer-based simulation and prototyping capabilities based on advanced weapon codes and high performance computing (HPC). The program will provide the ability to evaluate, maintain, and prototype nuclear weapons and weapons components in the absence of underground nuclear testing and with a downsized weapons manufacturing infrastructure.

Question: How is ASCI different from the High Performance Computing program under Technology Transfer?

Answer: The Technology Transfer High Performance Computing program (also known as the High Performance Computing Major Partnership) is focused on complementing and supporting the core computing programs at the national laboratories, while assisting U.S. industry. The program currently consists of the Advanced Computational Technology Initiative (ACTI) and several high performance computing CRADA's. These initiatives also complement many of the goals of the national High Performance Computing and Communication (HPCC) program, but are not directly related. These initiatives were instituted well before the Accelerated Strategic Computing Initiative. They are now being evaluated and redirected where appropriate to support the ASCI program.

ASCI is a mission critical program. The program will create computer-based simulation and prototyping capabilities based on advanced weapon codes and high performance computing that are essential for maintaining the safety, reliability and performance of the U.S. nuclear stockpile. The program will provide the ability to evaluate, maintain and prototype nuclear weapons and weapons components. ASCI is not intended to be a technology transfer program, but it does contain elements intended to strengthen the U.S. supply of cutting edge computational capabilities. ASCI will also leverage appropriate current and future Defense Programs activities to increase U.S. industry competitiveness.

Question: How is the program structured? Is it goal and performance oriented?

Answer: ASCI is structured around five key goals, each with specific performance milestones by year. These goals are designed to achieve the program objectives of providing full-system, full-capability three-dimensional (3-D) simulations; pursuing simulation fidelity; insuring correctness of code results; and accelerating code performance:

1) Create Seamless Management: One Program - Three Laboratories. There will be unprecedented cooperation among the three DP laboratories. ASCI project management and implementation will be integrated seamlessly across laboratories. The ASCI research projects will share code development, computing, storage, and communications resources across laboratory boundaries in joint-development efforts.

2) Focus on Advanced Applications Development. ASCI will develop the high-performance software applications needed to implement computer-based simulation and prototyping. These applications will integrate 3-D capability, finer spatial resolution, and more refined physics to obviate the need for verification of results through underground tests and prototype performance validation tests. The nuclear performance applications will be verified and validated using data from a range of nonnuclear test facilities and experimental results from historical underground tests. These applications will be designed for maximum performance on massively parallel processor (MPP) computers.

3) Focus on the High End of Computing. More powerful supercomputers are needed for computer-based simulation and prototyping applications. ASCI will stimulate the U.S. supercomputing industry to develop high-performance supercomputers with speeds and memory capacities 1000s of times greater than currently available models and 10s to 100s of times greater than the supercomputers that we anticipated based on current trends in development. ASCI will partner with various U.S. supercomputer manufacturers to accelerate the development of larger and faster computer systems and software that run defense programs applications more efficiently.

4) Create Problem-Solving Environments. To couple the applications to the supercomputers and make them usable at desktops throughout the DP laboratory complex, ASCI will develop key elements needed for a computational infrastructure of local area networks, wide-area networks, high-speed, high-capacity intelligent storage facilities, and software development and data visualization tools. This effort will take advantage of ongoing industry, academic, and other government agency research and work with existing organizations to develop and apply standards.

5) Encourage Openness and Collaboration. ASCI will require the technical skills of the best computer and computational scientists working in academia and other government agencies. Wherever possible, ASCI will take full advantage of existing organizations, consortia, and cooperative research projects to leverage those efforts. ASCI will also initiate exchange programs to bring top researchers directly into the project while allowing laboratory personnel to expand their experience base in external projects.

Question: What is the expected (estimated) funding profile over the next 5-6 years? Are successive funding requests tied to major milestones?

Answer: ASCI is included in the DOE FY 1996 budget request at \$45 M to initiate the program. Accelerating the computational and simulation capability in support of a capability based stockpile stewardship approach requires outyear budgets estimated as follows:

FY 97	FY 98	FY 99	FY 00
\$125M	\$145M	\$145M	\$145M

These funding levels will be achieved by reprioritizing funds within the funding base of the Stockpile Stewardship Program.

The ASCI program plan contains key near-term computer and applications performance milestones and major weapon code demonstrations along the path to a full simulation and prototyping capability.

Threat Assessment and Treaty Implementation Costs

Question: Why are these activities budgeted under the core Stockpile Stewardship program and not under the Verification and Control Technology?

Answer: We have a stake in assessing the future threat environment in which the nuclear weapon stewardship mission will be carried out. The core weapons research and development program has historically been committed to supplying technical support for the prevention of technological surprise and assessment of the state of technology of possible proliferant countries. The weapons program provides nuclear weapons knowledge and experience resident in its stewardship activities to support not only that historical commitment, but to support the broader requirements of DOE's National Security Technology customers as well. Support includes advice in treaty negotiations, assessment of third world/terrorist devices, development of diagnostic capabilities and enhanced disablement technologies, investigation of possible surrogate materials for use in device fabrication, and boundary monitoring.

Question: What accounts for the \$6 million increase over 1995? Describe briefly any new initiatives being planned in FY 1996 and the funding level included for each.

Answer: This \$5.8 million increase will allow the weapons laboratories to evaluate the disablement effectiveness of an electron beam, along with the feasibility of a compact accelerator and other speed-of-light disablement techniques. It will fund the investigation of materials that may be substituted for various weapons components and their energetic response in potential proliferant elementary designs.

Question: Describe the Silver Bullet Demonstration and Technology (unclassified description).

Answer: The Department of Energy, on behalf of the U.S. Government is charged with providing the technical response to all radiological or nuclear emergencies within the U.S. and abroad. One of the emergency response elements, the Nuclear Emergency Search Team (NEST), provides the technical response to acts of nuclear terrorism. Upon diagnosis and assessment of the improvised nuclear device (IND), it may become necessary to violently disable it. A suite of disablement schemes is therefore necessary to neutralize different types of INDs. One such disablement scheme is the "Silver Bullet" shaped charge technology. Specific information about its efficacy, applications, and configuration are classified.

National Ignition Facility

Question: How will NIF contribute to meeting the goals of the strategic stockpile stewardship plan?

Answer: The National Ignition Facility (NIF) would contribute to our ability to ensure the continued safety, security, and reliability of the stockpile by improving our understanding of the underlying physics of nuclear weapons. Since the NIF will simulate, on a very small scale, the extraordinary temperatures and densities that occur during the detonation of a nuclear weapon, the facility will provide unique physics information on the fusion process in weapons and on the energy and radiation transport processes that occur at the high density and temperature conditions in weapons. This physics information, along with other weapons data, will greatly enhance our ability to verify predictions of extremely complex computer models,

improve our ability to evaluate problems, and to some extent guide "servicing" choices that must be made as weapons reach their age limits or exhibit defects.

In addition, the NIF would attract world-class scientists and engineers because the facility provides the opportunity to address "leading edge" scientific questions regarding nuclear weapons as well as fundamental science and energy issues. This cadre of scientific and engineering talent is the key to the sustained success of our stockpile stewardship program.

Question: What would be the impact on the nuclear deterrent and national security if the project does not proceed?

Answer: The "science-based" stockpile stewardship program is embarking on a new course which relies on aboveground experimental and computational capabilities to assess and predict the consequences of complex problems that are likely to occur in an aging stockpile. The NIF will strengthen our understanding of the weapons physics, thus improving our ability to evaluate problems, make the necessary repair/modifications, and subsequently evaluate and recertify the modified nuclear components without the use of underground testing.

Without NIF, we would not be able to resolve some physics-related uncertainties that affect primary boost and secondary performance. Weapons servicing would proceed with less understanding of the impact on performance caused by the inevitable small changes in components. Without testing and without experimental physics data from the NIF, confidence in the stockpile would begin to erode over time.

Equally important is the need to maintain the necessary expertise and skills unique to nuclear weapons and essential for science-based stockpile stewardship. Because the safety, security and reliability of the weapons stockpile and the vitality of the weapons laboratories are highly correlated, it is critical that we maintain laboratory competence in all aspects of nuclear weapons. The NIF offers a powerful draw for the scientific talent needed to address the Nation's continuing national security challenges. Without NIF, and other "leading edge" research opportunities, the laboratories would find it difficult to maintain and preserve the core intellectual and technical competencies needed to maintain a nuclear deterrent.

Question: I believe that some have argued that the facility should not be constructed because of nuclear weapons proliferation concerns. Could you discuss that issue as it relates to the Administration's plan to proceed with the project?

Answer: The Department has added a new milestone for the NIF, known as Key Decision One Prime (KD1') to explore the question of whether or not the NIF will aid or hinder the Nation's nonproliferation efforts. In response to a request from Congressman Dellums, and to concerns raised in a public workshop on the NIF held in September 1994, the Secretary directed the DOE Office of Arms Control and Nonproliferation to conduct a study of the nonproliferation implications of the NIF. The study is expected to be completed in September 1995. The Secretary will use the study to make a determination on the KD1' decision prior to proceeding to Key Decision Two which authorizes detailed design.

Question: Does the budget request before the committee represent a commitment by the DOE and the Administration for follow-on funding of the NIF in FY 1997?

Answer: The FY 1996 request provides for the completion of the Title I design and the initiation of the industrial "manufacturing readiness" efforts needed to enable quantity production of large glass and light conversion crystals. The Department will complete the KDI' process prior to requesting follow-on funding in the FY 1997 budget request. In its outyear planning, the Department has included the follow-on funding requirements for the NIF.

Question: Is the Administration totally committed to funding NIF construction?

Answer: Although the Department has included the outyear requirements for NIF in the Five Year Budget Plan which will be submitted to the Congress shortly, the Department will make a final decision concerning the NIF after the KDI' decision, Title I design, NEPA process, and site selection have been completed.

Question: How confident is the DOE in the \$840 million construction cost estimate?

Answer: For a project of this type and scale, and at this point in its development, our confidence in the \$843 million construction cost estimate is high. The costs are based on the successful "Beamlet" prototype, previous NOVA laser construction, and extensive industrial estimates. An independent cost review by Foster Wheeler USA Corporation validated the cost estimate.

Question: What major scientific and technical issues need to be addressed to keep the construction cost at \$840 million?

Answer: The cost of laser glass and special frequency conversion crystals are the principal cost uncertainties. Prototype components with the needed characteristics have been tested in the "Beamlet" laser. However, the industrial cost projections for the large quantities of these components in the NIF remains the principal uncertainty and has the largest contingency included in the cost estimate. An industrial development program is being pursued as a risk-reduction program to verify and improve these cost projections.

Question: How would the cost change if the facility were located at some place other than Lawrence Livermore?

Answer: The costs of alternate sites have not yet been fully analyzed; however, they will be evaluated during the NEPA and site selection processes planned for FY 1995 and FY 1996. At this time, our best educated guess is that the costs would increase within a range of tens of millions to as much as \$200 million depending on the alternate site considered.

Manufacturing Technologies

Question: What specifically accounts for the increase over the FY 1995 funding level?

Answer: Four new initiatives planned in FY 1996 account for the increased request over the FY 1995 funding level. These new initiatives will enable the integration of components and systems required to sustain the nuclear deterrent, incorporation of new technologies into science-based stockpile stewardship and stockpile support operations, and demonstration or prototyping of emerging technologies.

Question: What new initiatives are planned in FY 1996 and what are their future funding commitments, if any?

Answer: The four new initiatives planned in FY 1996 are: (1) development of advanced engineering models and computer design of materials response for manufacturing applications; (2) design of tools and process analysis techniques that enable manufacture of small-lot, ultra-high reliability components and subsystems; (3) development of a process to minimize worker hazards and mitigate the environmental impact of weapons systems and component realization cycle; and (4) development of a product realization system that yields reliable components and subsystems with reasonably fast cycle time using principally commercial materials, components, processes and manufacturing. This research program will also provide guidance and support to the Advanced Design and Production Technologies (ADAPT) program. The budget information by initiatives was unavailable as of March 23, 1995.

Testing Capability Readiness

Question: What is the policy of the U.S. regarding the resumption of underground nuclear testing?

Answer: In a statement issued January 30, 1995, the President's National Security Advisor announced that the President was extending the current nuclear testing moratorium until a Comprehensive Test Ban (CTB) Treaty enters into force on the assumption that a treaty will be signed before September 30, 1996. In accordance with Presidential directive, the Department has taken measures to maintain a capability to conduct a nuclear test within 2 to 3 years of a direction to do so. Any resumption of nuclear testing by the United States would have to be in conformance with the provisions of the Hatfield/Exon/Mitchell Amendment, Section 507 of the FY 1993 Energy and Water Development Appropriations Act.

Question: If the President ordered a resumption of testing, how long would it take to conduct a minimal program?

Answer: By Presidential direction, during FY 1995, the Department is required to maintain a capability to conduct a single, technically simple underground nuclear test within 6 months of an order to do so. A minimal program, consisting of several

nuclear tests, would require a buildup of resources associated with the Nevada Test Site and laboratory nuclear test staff and would likely be feasible within a year of that single test.

Question: Does the budget request for FY 1996 support the capability to undertake a minimal test program within 6 months?

Answer: No. Beginning in FY 1996, by Presidential direction, the Department is only required to maintain a capability to conduct a single underground nuclear test within 2 to 3 years of an order to do so. The funding request in FY 1996 is sufficient to support that requirement. A minimal program, consisting of several rather than a single nuclear test, would require a buildup of resources associated with the Nevada Test Site and laboratory nuclear test staff and would likely be feasible within a year of that single test.

Question: The budget justification material supports resumption of testing within 24-36 months. Is this a minimal or full testing program?

Answer: Beginning in FY 1996, by Presidential direction, the Department is only required to maintain a capability to conduct a nuclear test within 2 to 3 years of an order to do so. The budget request supports only this minimal program. A more robust program, consisting of several nuclear tests in a year, would require a buildup of resources at the Nevada Test Site and laboratory nuclear test staff. Such a test program would likely be feasible within a year of an initial resumption of testing.

Question: Would the budget request change appreciably if you assume returning to a minimal program within 36 months?

Answer: We have estimated our resource requirements based on readiness to conduct a single test in the 36 month time frame. A "minimal" program would involve several, at least 3 nuclear tests. Unless funds were diverted from other program activities, it would be necessary to increase allocations to the nuclear testing program to conduct these additional nuclear tests within the time frame. The current FY 1996 request includes \$160.6 million for Testing Capability and Readiness, and \$21.6 million for Experimental Support both of which would be provided to the Nevada Operations Office. In addition, the technical staff and resources at the national laboratories that would be required for underground nuclear testing are currently funded within the Stockpile Stewardship Programs and Initiatives portion of the budget. To accommodate plans to conduct a program of several nuclear tests per year and, presumably to continue at a similar level the following years, we estimate that approximately \$50-100 million would be needed to build up the resources, staff, and equipment to design and field these nuclear tests. These funds would be distributed to the Nevada Test Site and the national laboratories and would be provided in addition to current funds or reallocated from other sources to nuclear testing activities.

Question: Why does it take \$160 million annually to maintaining the capability to resume testing in 2-3 years?

Answer: The Nevada Test Site is a 1,350 square mile area, larger than the state of Rhode Island. This \$160 million supports the NTS infrastructure costs including maintenance of roads, utilities, communications, housing, transportation, security, occupational safety, fire protection, industrial hygiene, radiation analysis dosimetry and safety, geology, hydrology, meteorology and seismic analysis, and other environmental management operations such as landfills, sewage systems, and pest control. In addition, engineering equipment and facilities associated with nuclear test operations (device assembly and emplacement, diagnostic instrumentation fielding and analysis, containment, timing and firing, shock mounting, data telemetry, etc.) are also provided with these funds, consistent with the Presidentially directed level of readiness.

Question: Provide for the record a detailed breakout of the costs by major activity, including Federal and contractor employment, to operate and maintain the NTS annually from FY 1991 to FY 1995.

Answer: The following table is provided for the record. You will see that the dollars amounts provided are for costs, not annually appropriated amounts. Showing costs allows us to accurately show the support provided by other sources, other DOE programs, other federal agencies, for the NTS infrastructure required by all programs at the site.

Operation and Maintenance of the Nevada Test Site
Costs (Not BA) in Thousands

	<u>FY 91</u>	<u>FY92</u>	<u>FY 93</u>	<u>FY 94</u>	<u>FY 1995 Planned</u>
Readiness/Tests/ Experimentation	\$184,508	\$170,415	\$118,406	\$126,293	\$87,350
NV Directed/Federal Staff	54,305	55,072	59,481	59,341	57,229
Common Infrastructure	60,219	61,113	69,827	66,208	59,632
Weapons Program Dir.	<u>11,157</u>	<u>14,104</u>	<u>15,245</u>	<u>16,588</u>	<u>15,592</u>
Total, NTS Operations & Maintenance	\$310,189	\$300,704	\$262,959	\$268,430	\$219,803
Estimated Manpower					
Contractor	4,075	3,571	3,286	3,193	2,458
Federal - Test	186	176	169	167	160
Federal - Program Dir.	<u>168</u>	<u>168</u>	<u>170</u>	<u>173</u>	<u>171</u>
Total, Est. Manpower	4,429	3,915	3,625	3,533	2,789

Question: What types of experiments are supported by the \$21.6 million requested for FY 1996 for Experimental Support?

Answer: NTS contractors are supporting experimental activities sponsored by the national laboratories and the Defense Nuclear Agency. In FY 1996, these will include some stockpile stewardship experiments with large quantities of high explosives and hazardous materials. The work involves diagnostic support (detector design, fabrication, calibration, installation, and data recording) as well as other field operations and engineering services. In addition to activities at the NTS, technical support will be provided for experiments planned at laboratory sites utilizing high explosives, lasers and pulsed power energy sources.

Question: How do these experiments help maintain critical skills and personnel? What are those critical skills and personnel?

Answer: Many of the tasks to be carried out and the techniques utilized in the design and fielding of an underground nuclear test are comparable to those required for other tests or experiments, especially those which involve relatively large quantities of high explosives and fast diagnostics. Active participation in such experiments will help nuclear test scientists and engineers keep their technical skills in many areas including explosive device assembly; storage and transportation; diagnostic instrumentation design, fabrication, calibration, installation, and recording; arming and firing; test device emplacement and alignment; and timing and experimental control.

Question: What other areas of the DOE budget support these critical capabilities?

Answer: Other portions of the Stockpile Stewardship program support activities that help maintain these skills. These include experimental activities with high explosives, electromagnetically driven pulsed power experiments, and laser driven experiments.

Core Stockpile Stewardship - Capital Equipment

Question: What is the justification for such a large increase over the 1995 level, particularly since there are no new major items anticipated in 1996?

Answer: The increase in funding for basic equipment at the weapons laboratories between FY 1995, \$28.8 million, and FY 1996, \$39.4 million, represents a restoration of capital equipment funding that had fallen off during the last few years relative to operating expense funding .

The changes in ongoing activities at the laboratories over the last several years due to the transition to the new Stockpile Stewardship program resulted in a considerable growth in funds left uncOSTed at the end of each fiscal year. Accordingly, we reduced our requests for capital equipment in order to work off this backlog of unused funding. These uncOSTed balances have now been expended and need to increase funding relative to the FY 1995 to support ongoing activities. For comparison purposes, the comparable amount of funding in FY 1993 was \$49.6 million.

In total, the increase in laboratory capital equipment funding is offset by a reduction of over 45 percent in the capital equipment funding requested for activities at the Nevada Test Site and by a small reduction in funding for computer purchases. The net effect is that total capital equipment funding for Core Stockpile Stewardship only increases by about five hundred thousand dollars between FY 1995 and FY 1996.

Inertial Confinement Fusion

Question: How will the \$9.0 million be used? If in support of NIF, why is it not included under NIF operating expenses?

Answer: Glass lasers are the front running technology being developed to achieve fusion in the laboratory. The Nova facility at the Lawrence Livermore National Laboratory (LLNL) is the "flagship" of the Inertial Confinement Fusion (ICF) program that is currently conducting indirect drive experiments in support of stockpile stewardship and the National Ignition Facility (NIF). The increased funds will support critical research and development in target physics, glass lasers, optics, and target area technologies that contribute to the stewardship scientific base, and now supports the NIF project as well. Glass laser work will address power, optical switching, and beam control. Optics will include improving laser damage thresholds and developing/reducing costs of raw material production and optical fabrication. Target area technology addresses diagnostics and target debris (including protecting/cleaning in the chamber). The results of the Nova experimental program and other indirect drive research conducted by LLNL and Los Alamos National Laboratory provide key underlying science and technology for stockpile stewardship.

The FY 1996 budget request establishes a separate line to identify operating expenses that are part of the total project cost of the NIF. This makes it possible to clearly segment those funds that are project specific to NIF, such as environmental documentation, safety analysis reports, and optics and laser production readiness activities, from the base ICF program which supports the fundamental research and technology development in inertial confinement fusion. While this research supports the technologies that will benefit the NIF and is critical to its success, these activities are important, independent of NIF, to the stockpile stewardship program, and provide valuable data for high-energy-density physics and continue the assessment of ICF as a potential clean energy source.

Question: Briefly discuss each technology, its contribution to each of the missions, and the scientific and technical milestones which are pacing the research effort.

Answer: The ICF program supports research in glass laser, gas laser, and light ion beam technologies.

Glass lasers are currently the drivers achieving the highest temperatures in ICF capsules. This technology is considered the most likely to produce laboratory fusion ignition, and is now used in weapons-related experiments and studies. The glass laser is the selected driver for the proposed National Ignition Facility, which has completed conceptual design and is requested as an FY 1996 new construction line-

item. Specifications for NIF driver development are being met by the Beamlet at LLNL. Target fabrication techniques are being developed at General Atomics to meet proposed NIF target physics guidelines. Engineering design of the NIF is planned to begin in 1996.

The operation of the upgraded Omega glass laser at the University of Rochester Laboratory for Laser Energetics (UR/LLE) is scheduled to begin in April 1995. This facility will explore direct drive as a possible path to ignition, complement the use of the Nova facility at LLNL to perform stockpile stewardship experiments, and provide guidance for design of the NIF.

Within the gas laser technology program, Nike, a KrF laser, will begin operation in the spring of 1995 at the Naval Research Laboratory (NRL). This laser has an extremely uniform wavefront ($< 1\%$ variation) which will be used to do planar hydrodynamic experiments. Such experiments are suitable for investigation of hydro-instabilities that are of significance to ICF capsule ignition and weapon implosions and for benchmarking hydrocodes. Besides being a useful stockpile stewardship tool, this technology is being developed as a backup to glass lasers as a direct drive option for ignition. It may be the laser technology most suitable for ICF energy applications.

The near-term objective for the light-ion approach is to obtain the beam focal intensities necessary to study ion-beam driven target physics issues. At present intensities, the PBFA-II ion accelerator at Sandia National Laboratories is useful for generating long pulses for initial ICF capsule collapse studies. In addition to providing an alternate driver technology for ICF, pulsed power drivers are useful for stockpile stewardship experiments and for generating x-rays used in weapons' effects testing. The advantages of light-ion accelerators are high efficiency and the potential for large energy deposition and high gain, which will be useful for both weapon physics and energy applications. One of the milestones that is being pursued is to achieve beam intensities high enough to produce 100 eV hohlraum temperatures.

All of the above ICF technologies support the primary mission of stockpile stewardship in complementary ways, and are considered essential to that mission.

Question: Is each research program based on firm milestones and evaluation points where decisions regarding funding are made?

Answer: Yes. Technical contracts are in place for all major efforts in ICF and progress is measured against the elements of these contracts. Research efforts must be reviewed on a regular basis to identify and assess unanticipated problems and to re-evaluate progress. A federal advisory committee, the Inertial Confinement Fusion Advisory Committee (ICFAC), meets on a regular basis to advise the Assistant Secretary for Defense Programs.

Question: With the commitment to the NIF, what plans does the Department have to focus or narrow the ICF program?

Answer: The Department has no plans to narrow the base ICF research program. The NIF is the next logical facility in the development of ICF capabilities to meet its mission, but it is not the end of the ICF program. As it has with each previous ICF

facility, the ICF program will support the scientific research and development that is necessary for the success of the NIF. In addition, the base ICF program provides the "technology base" which supports the stockpile stewardship program through research in high-energy-density physics, radiation effects, and realizing thermonuclear fuel ignition and burn in the laboratory. Efforts at a lower level will also continue to explore the potential of ICF for civilian applications, such as power generation.

Question: Can future budget planning numbers support the program without some sort of reduction in parallel efforts?

Answer: Yes. The National Security Programs Five Year Budget Plan has included the NIF as a key element of its science-based stockpile stewardship program. Accordingly, the Department is committed to continuing the base ICF program since the success of the NIF is inextricably bound to the ICF base program.

Question: Provide for the record a chart which shows existing technology options and key decision points as to continued viability, existing facilities and how they would be phased out, and any new facilities and when they would be phased into the ICF program.

Answer: Existing technology options in the ICF program are identified in the chart that follows. All are involved in carrying out the mission of the ICF program: support of nuclear weapons stockpile stewardship through research in high-energy-density physics and radiation effects, realizing thermonuclear fuel ignition and burn, and, at a lower level, exploring the potential of ICF for civilian applications.

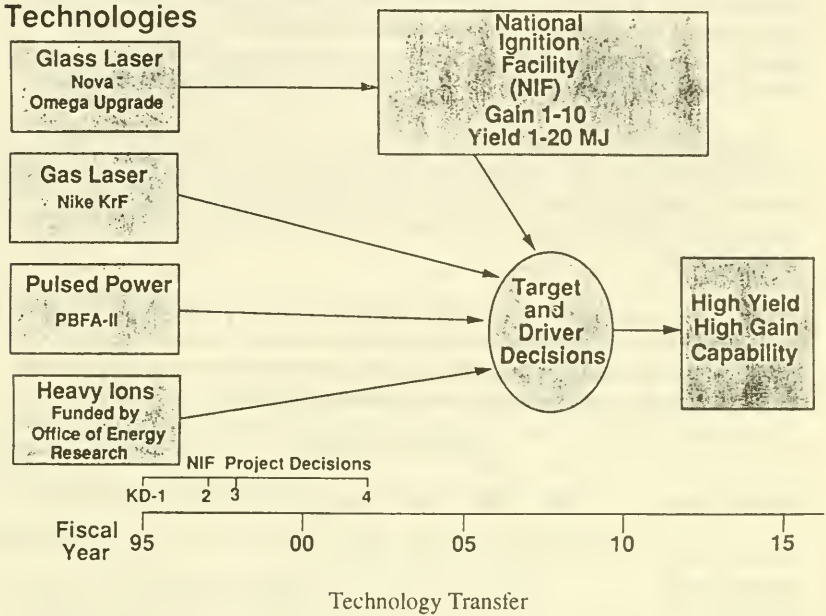
The chart also identifies existing and planned ICF facilities that exploit these technologies. The Nova glass laser facility, still the world's most powerful laser, has been on line since 1985 and continues to be the most productive of all ICF facilities. The Omega Upgrade glass laser facility and the NIKE krypton fluoride laser facility will begin operation in 1995 and become fully operational in the next year or two. The Particle Beam Fusion Accelerator II (PBFA II) has been operational since 1986, and is supporting the program mission with relatively low-temperature, long-pulse radiation data. Engineering design of the National Ignition Facility (NIF) is planned to start in 1996 (identified in the chart below, with other key decision points). If a decision is made to proceed with construction, this facility, could be operational in 2002, and would provide the capability for high-energy-density physics experiments and radiation effects tests in the regime of fuel ignition and modest gain (the amount of energy out will be greater than one but less than 10 times the amount of energy in).

All facilities play unique roles in support of the program mission; none, however, can do the job alone. There are no plans for phasing out any of these facilities or technologies, but each is subjected to frequent scrutiny by the Department through regular reviews of a federal advisory committee made up of prominent scientists and executives. Each is regularly assessed for viability and will be phased out when it is deemed expedient to do so, as has been done for many ICF facilities no longer extant (Shiva, Antares, PBFA I, Halite/Centurion).

Beyond the NIF, no facility that utilizes a specific technology has been identified, though the ICF program chart identifies eventual realization of a high-gain, high-yield capability at some time after the NIF has been operational (2015 or later).

[The chart follows:]

Inertial Fusion Technology



Question: Describe the two new Technology Transfer Initiatives proposed in the 1996 budget. Include a breakout of both Federal and non-Federal costs; funding profile; a discussion of the direct benefits to defense core competencies, and what, if any, selection or review process is involved.

Answer: The two Presidential commitments included in the FY 1996 budget request for Technology Transfer are the National Information Infrastructure (NII) Initiative and the Partnership for a New Generation of Vehicles (PNGV) initiative.

NATIONAL INFORMATION INFRASTRUCTURE (NII)

The NII Initiative is not new in 1996; it was first started in 1993. The goal of this major partnership is to apply information technology to reduce costs, share information and promote innovation within a global virtual environment. It simultaneously supports national security related applications and enhances U.S. industrial competitiveness. The Initiative provides industry focused projects that are application driven and technology enabled, and which result in commercially supported services.

An important element of the NII major partnership is that projects are concentrated on no more than two customer industries at one time. This allows the major partnership to focus significant effort on an industry sector and ensures that the results of those efforts are reusable by other industrial sectors.

Early in the NII major partnership, DOE and the labs identified the gas and oil industry as an excellent first customer for several reasons: 1) it is an industry with a long tradition of being early and significant users of computers and information technologies; 2) the industry sector clearly comes under the broad mission of the Department of Energy, and has shown a long standing desire to work with the national laboratories; and, 3) the information technologies needed by the gas and oil industry are closely aligned with the technology needs of Defense Programs (DP).

The second industry sector selected to be part of the NII major partnership is advanced manufacturing. Advanced manufacturing is at the core of DP's mission and the development of information technologies to support manufacturing is an essential element of DP's future. Additional industry sectors will be selected in FY 1995 for future activities.

The current dual-benefit technologies that the NII major partnership is focusing on are: communications infrastructure, distributed computing, collaborative tools, mass storage, high speed input/output, information security and surety, visualization and analysis, information management, and electronic commerce.

Dollars in Millions

<u>Industry Sector</u>	<u>FY93</u>	<u>FY94</u>	<u>FY95</u>	<u>FY96</u>	<u>FY97</u>	<u>FY98</u>	<u>FY99</u>	<u>FY00</u>
Gas and Oil	\$4.5	\$9.6	\$6.6	\$3.0				
Manufacturing		2.0	2.0	4.0	\$6.0	\$6.0	\$4.0	
Sector #3					2.0	2.0	4.0	\$6.0
Sector #4								2.0
Total	4.5	11.6	8.6	7.0	8.0	8.0	8.0	8.0

This Initiative is cost-shared with industry contributing similar funding. Industrial partners include the Society for Exploration Geophysicists (representing over 150 companies), Amoco, Sprint, Willtel, Ameritech, Cisco Systems, and a large number of independent oil and gas producers.

Benefits to Defense Core Competencies

There is a critical need for DP to remain abreast of, and to advance, information technologies. This need has become more acute due to the shift from a test-based stockpile stewardship approach to science-based stockpile stewardship (SBSS). The SBSS approach will require a more integrated approach by theorists, experimentalists and computational scientists in the exchange of information and data.

The focus of the NII major partnership is to integrate the following information technologies to support the needs of science-based stockpile stewardship: communications infrastructure, distributed computing, collaborative tools, mass

storage, high speed input/output, information security and surety, visualization and analysis, information management, and electronic commerce.

Selection/Review Process

The NII Initiative is managed by a DP Headquarters Program Manager, who is responsible for coordinating the NII major partnership to achieve dual benefit and to increase U.S. economic competitiveness, in conjunction with the Industry Sector Coordinating Committee for each industry focus area.

Each Industry Coordinating Committee consists of representatives from each participating laboratory or facility as well as the DP program manager. The coordinating committees, in close coordination with the industry participants, develops the vision for the industry focus area. The laboratories identify projects which support the defined vision as well as key laboratory missions, and, where appropriate, provide partnering opportunities with the other laboratories. The Industry Coordinating Committee then selects projects to be funded. The Industry Coordinating Committees meets on a regular basis to monitor status of the overall focus area and to provide direction as appropriate.

Project reviews are conducted regularly, normally on an annual basis. Each Industry Coordinating Committee is responsible for developing a review process appropriate to the projects underway and the industry sector. Project reviews usually involve a technical peer review by a panel of laboratory, academic and industry experts.

PARTNERSHIP FOR A NEW GENERATION OF VEHICLES (PNGV)

The PNGV is a partnership between the federal government and the U.S. automotive industry which was announced late in 1993. It is designed to strengthen U.S. competitiveness by developing technologies that are needed now, and to develop new vehicles that will make dramatic improvements in fuel efficiency and emissions. However, since the inception of DP's Technology Transfer program, the DP laboratories and facilities have been involved in dual-benefit Cooperative Research and Development Agreements (CRADAs) with the auto industry.

The three interrelated goals of the PNGV Initiative are to: 1) significantly improve national competitiveness in manufacturing; 2) implement commercially-viable innovation from ongoing research into conventional vehicles; and 3) develop an affordable 6-passenger vehicle with up to three times the fuel efficiency of today's comparable vehicle.

Although the PNGV is only a little over a year old, a management team from both the government and the auto industry has been formed. Detailed technical plans for each of the candidate technologies have been developed, and about 30 CRADAs have been signed in areas that include: high-performance computing for automotive design, on-board diagnostics, advanced materials, recycling, superplastic forming, laser beam welding, adaptive controls for engine management, fuel combustion optimization, and advanced exhaust gas sensors. In programs distinct from DP, a Fuel Cell Alliance

among the auto companies and the government has been formed and two major hybrid vehicle contracts are in place. An advanced materials agreement has also been signed with DP involvement. DP will participate in the CRADAs which meet its dual-benefit criteria.

The overall DOE resource requirements for FY 1994 through FY 1996 are shown in the following chart:

<u>Program Office</u>	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>
Energy Efficiency & Renewable Energy	102.0	115.5	176.8
[Transportation Technologies	97.5	103.4	166.7]
[Industrial Technologies	4.5	12.9	14.4]
[Technical & Financial Assistance	-	-	2.0]
Defense Programs	40.3	40.0	50.6
Energy Research	4.9	3.7	22.7
TOTAL:	<u>147.2</u>	<u>159.2</u>	<u>250.1</u>

Overall, the PNGV Initiative will be cost-shared: 50 percent by government and 50 percent by industry. The proportion of federal funding will be higher for the high-risk, long-term projects supporting the third goal. Likewise, the industry funding will be greater for the nearer-term technologies being pursued under the first and second goals.

In FY 1996, DP is requesting \$14.9 million for PNGV new-starts. Of this amount, \$11.9 million will fund dual-benefit Engine Systems Support Technologies (ESST) projects including: sensors for exhaust, controls, monitoring, etc.; superplastic forming of stainless steel; intelligent laser welding of thin-walled sections; on-board diagnostics; and material, design, and process modeling. The remaining \$3 million will fund other high-return projects in the areas of energy storage and manufacturing technologies. All of these technologies have applicability to one or more phases of the nuclear weapons life-cycle, and the selection process will insure that each project contributes to the program.

Benefits to Defense Core Competencies

There are a wide variety of technologies resident at the laboratories which are of benefit to both the weapons program and the automotive industry. The dual-benefit technology areas that will contribute to achieving the goals of the PNGV while at the same time supporting important needs of DP's weapons complex include: agile/flexible manufacturing; rapid prototyping; casting design; superplastic forming; robotics; process control; waste stream reduction techniques; structural light weight alloys; advanced composites; catalytic materials; improved property sensors; super-computing applications; and energy storage and management applications.

Selection/Review Process

To ensure efficient and effective management of the PNGV program, the auto industry and government have formed two teams -- an Operations Steering Group and a Technical Team -- to conduct strategic planning, determine technical requirements, identify resources needed, and establish milestones necessary to meet each of the goals.

The master schedule incorporates a three-phase technology development program to provide an orderly progression from the development of discrete technologies to the development of a full-vehicle demonstration. The candidate technologies include: direct-injection engines, hybrid-electric propulsion, fuel cells, gas turbines, electronic and electrical devices, energy storage devices, and light-weight materials and structures. In each of these areas, and in subcategories within these areas, detailed plans are being developed for component development, subsystem fabrication, system integration, and performance testing. The broad areas of the master schedule include:

1994 - 1997	Component development and selection
1998 - 2000	System integration and validation in a concept vehicle
2001 - 2004	Determination of feasibility and affordability in a production prototype

Eight federal operating agencies (The Departments of Commerce, Energy, Defense, Interior, and Transportation, and NASA, EPA, and NSF) are working with the three domestic auto manufacturers: Chrysler, Ford, and General Motors through the United States Council for Automotive Research (USCAR), an umbrella organization formed to conduct pre-competitive research. Through USCAR's various consortia, the automotive supplier industry is brought directly into the program. In addition, a number of programs in DOE, DOC, and NSF are designed to bring small businesses, entrepreneurs, and universities into the PNGV program.

Question: Were the new Initiatives proposed by the field or program office?

Answer: The NII Initiative was started by DP at the request of the Secretary of Energy. The PNGV Initiative was also started by DP at the request of the Secretary of Energy, but many individual automotive projects which pre-dated the PNGV were proposed by the laboratories in combination with auto companies.

Question: What actions or procedures are in place to focus the technology transfer activities on those things that will result in the greatest benefit to the core competencies?

Answer: Historically, the Technology Transfer program has funded only those activities which support the Department's defense mission through dual-benefit technology partnerships with industry. Recently, the Technology Transfer program has placed a greater emphasis on support for the core weapons needs by improving the focus of projects selected for funding. The selection process has been simplified. For example, the Laboratory/Facility Partnerships delegate directly to the laboratory or facility the authority to select and fund projects in accordance with a DOE

Headquarters approval plan. This maximizes the laboratory's ability to target partnerships which directly benefit their core competencies and allows for more rapid-response partnerships with industry.

Defense Programs is currently developing the Advanced Design and Production Technologies (ADAPT) Initiative that will plan, develop, and transition to the infrastructure which will remanufacture and maintain nuclear weapons in the future. The ADAPT, along with the Accelerated Strategic Computing Initiative, will rely heavily on the technologies being pursued though the current initiatives in the Technology Transfer program.

Question: Provide for the record a detail description of each initiative, the amount of funding being requested for each, and the specific, direct benefits to Defense Programs core competencies.

Answer: In addition to the two Presidential commitments, the National Information Infrastructure Initiative and the Partnership for a New Generation of Vehicles Initiative, previously mentioned, there are several other initiatives included in our request.

Integrated Circuit Manufacturing Program:

The DOE National Laboratories have developed unique capabilities in manufacturing specialized integrated circuits, in understanding plasma physics, in large scale modeling of complex processes and in creating and manipulating extreme ultra violet (EUV) and soft x-ray radiation. These, and other capabilities are focused toward better fabrication processes and tools --including advanced lithography tools-- for producing integrated circuits. Such circuits are critical to the nuclear weapons and space programs and are essential in most DoD weapons programs.

DOE is working with SEMATECH, SRC and the nations largest electronics and IC companies to ensure that the defense needs of the country are met and, in the process, that the U.S. electronics and IC industries are able to be competitive in the global market place. Nearly all industries now depend on electronics that are readily available and affordable, something that can only be assured if U.S. industry remains viable in this area. The FY 96 request includes \$31 million for the combined programs in this broad area.

Flat Panel Displays:

The Flat Panel Display Initiative is a part of the DOD and DOE National Flat Panel Display Program. While strengthening and maintaining critical technologies at the defense laboratories, the objective of the DOE portion of the program is to help U.S. industry capture a significant share of the international market in flat panel displays (FPD). Approximately \$6.1 million is requested in FY 1996 for the FPD program.

The development of flat panel display technologies and manufacturing processes have direct strategic importance to DP's weapons and stockpile stewardship mission.

The impact in photonics and optoelectronics includes a broad range of dual-use applications: light sources for optical communication and data transmission, LEDs, lasers, high-speed detectors, and high-bandwidth modulators. New materials, coatings, and characterization methods developed in the FPD program can play a key role in weapons manufacturing by providing high temperature survivability, radiation protection and corrosion resistance for critical components. Particle accelerators offer one approach to manufacturing one type of FPD while plasma modeling (same models and physics as required for understanding weapons induced plasma) is greatly enhancing the probability of success for a second technology.

High Performance Computing Program:

The High Performance Computing program seeks to advance the capabilities and useability of computational resources to reduce cost, improve the design process and promote innovation to support national security related applications and enhance U.S. industrial competitiveness. The program selects industry focused projects that are application driven, technology enabled, and will result in commercially supported services and products. Defense Programs plans to spend \$19.1 million in FY 1996 for the HPC program.

Improvements in high performance computing tools are required to implement the Defense Program's science based stockpile stewardship program. Defense Programs has recognized this and is developing the Accelerated Strategic-Computing Initiative (ASCI) to ensure that high-end Massively Parallel Processor (MPP) computers will be available to support science based stockpile stewardship. The U.S. nuclear program relied heavily on testing to determine the performance of a weapons design. The computer simulations used in weapons design efforts employed empirical data, physics approximations, 1-D and 2-D symmetry assumptions, and coarse grid resolution to fit the problem onto available computers. These approximations were acceptable because the calculations were always adjusted to and validated by nuclear test data. With the end of underground nuclear testing, a new basis for these capabilities must be established. Simulation, such as a virtual test capability, requires high performance computing (HPC) well beyond our current level of performance. U.S. industrial economic competitiveness will benefit from the improvements in high performance computing to reduce risk with better decision making capabilities, decrease design cycles, and increase the pace of research and development.

AMTEX:

The AMTEX Partnership is a research and development collaboration between DOE, the DOE multiprogram laboratories, universities and the integrated textile industry. The goal of the partnership is to reverse the trend in loss of market share to offshore companies, improving the industry's competitive position by making significant step-changes in the cost and quality of American-made products. Defense Programs is involved in the partnership through the funding of CRADAs which include the three weapons laboratories, the Y-12 facility and the Savannah River facility. The tasks and subtasks of the AMTEX partnership apply the unique technical resources of the laboratories to the development of technologies identified as important by the partnership. Defense Programs is requesting \$9 million for AMTEX activities in FY 1996.

The defense laboratories and plants participate in the partnership in areas where the weapons R&D base provides unique capabilities and lower-cost, dual-benefit applications, such as:

- cost-effective, high speed, on-board computer hardware for use in weapons guidance systems
- affordable, improved, highly reliable sensors for automated manufacturing systems
- advanced communications and information management systems that integrate data systems, simulate production, and facilitate customer-supplier interactions
- advanced lasers, beam transport and material handling systems designed for high-speed operations and affordability by acquisition from commercial suppliers.

Agile Manufacturing:

The challenge faced by the DOE Defense Programs' manufacturing complex in implementing systems for manufacturing precision components reflects the challenge facing the U.S. manufacturing community in general. The objective of Agile Manufacturing Program is to develop and deploy integrated technologies that enable manufacturing enterprises to bring quality, cost-effective products to market rapidly. The strategy is to define top priority industry and Defense Programs needs for agile manufacturing tools, benchmark solutions available in the DOE complex and industry, define technology voids and develop integrated solutions to fill those voids. The technologies and concepts embodied in the agile manufacturing program are important to Defense Programs as it creates greater integration of the DP manufacturing complex as well as creating "smarter" industrial automation. Agile manufacturing is an essential technology innovation for the future weapons production enterprise, especially for the envisioned smaller-sized, low-volume complex that will rely more on outside suppliers and need to respond rapidly and flexibly to maintain the enduring weapons stockpile. The FY 1996 request includes \$7.8 million for the Agile Manufacturing Program.

Machine Tool Program:

The Machine Tool Program assists and facilitates the strengthening and enlargement of the U.S. machine tool industry through technology assistance, partnership, and deployment programs, in order to sustain a strong manufacturing technology base available to the DOE nuclear weapons complex. A government (DOE and DOC)/industry partnership called the National Machine Tool Partnership (NMTP) was formed in 1993. NMTP is a national technology assistance outreach initiative that enables the DP labs and production facilities to transfer machine tool related technologies directly to members of the machine tool industry. In addition to this partnership, the Machine Tool Program includes several CRADAs to enhance machining capabilities, notably on ceramic materials, which are vital weapons components. In FY 1996, \$8.9 million is requested for the Machine Tool Program.

The interaction of the weapons laboratories and production plants with the U.S. machine tool community is important to help:

- maintain laboratory technical capabilities in technology essential for weapons manufacture
- preserve a healthy machine tool industry in the U.S. to supply the weapons program with the tools necessary for weapons components production, as well as other national defense manufacturing needs
- develop improved and cost-effective capabilities for machine tools for use with new materials, with greater precision, and with more flexibility.

Medical Systems Engineering (Health Care Initiative):

The Medical Systems Engineering initiative seeks to use the national laboratories' integrated, systems approach in applying innovative technologies in scientific research, engineering, manufacturing, and computational capabilities to meet our national security mission needs, and provide dual benefit to medical technology. In FY 1996, the Medical Systems Engineering program is funded at \$8.1 million.

One area of effort in this project is the Micro-Assembly & Micro-Surgery project which is developing a micro telerobotic (MTR) platform that will facilitate operations on the eye, semi-circular canals, and the brain stem and extend the performance of surgeons in the fields of microsurgery, neurosurgery and ophthalmological surgery. This micro-telerobotic development will provide laboratories and facilities with additional assembly and disassembly techniques to be used in microelectronics and fiber optic package assembly as well as improve dismantlement techniques used in remote weapons disassembly.

The Medical Systems Engineering projects are designed to place appropriate tools in the hands of the health care provider, while at the same time maintaining and enhancing laboratory Defense Programs' core competencies. Tools developed under this program can increase the accuracy of the analysis not only of national security mission issues, (e.g. micro-strong link assemblies, nuclear surety, materials characterization), but also the analysis of a disease and the simplification of therapy. These technologies have links to Defense Programs core technologies in computers, sensors, lasers, and materials.

Materials and Processes for Manufacturing (Aircraft Engine Advanced Materials Program):

The objective of this program is to develop materials and manufacturing processes to incorporate affordable, improved materials into aircraft engine components, while also maintaining the weapons laboratories' technical expertise, and developing and acquiring new information about the fundamental characteristics and performance of materials and aging effects to respond to future needs to maintain the nuclear weapons stockpile. In FY 1996, \$5.4 million is requested for the Materials and Processes for Manufacturing program.

The defense laboratories have very active materials research and synthesis capabilities to develop advanced materials with superior strength, hardness, and toughness that will be applied to dual-benefit applications for the aircraft engine industry and the weapons program. For example, the development of titanium intermetallics and composites and engineered nanostructure laminates benefits the Weapons Surety Initiative. This initiative includes developing and implementing measures against accidental detonation and dispersal of nuclear materials through the development of advanced materials resistant to high temperature oxidation and molten metal corrosion. The development of processing product validation procedures are applicable to structural composite interfaces present in weapons systems. The experimental and numerical tools developed in this program may also be applied directly to existing combinations of materials used in nuclear weapons components or other systems of interest. The implementation of advanced materials into structural systems is related to advanced processing techniques, including joining, that have been developed in the weapons laboratories to fabricate and assemble complex structures.

Funding for the Science Education Program

Question: The budget justification contains very little detail supporting the \$20 million request for Science Education programs under Technology Transfer. Provide for the record a detailed breakout of each item or activity funded in 1994, 1995, and proposed for 1996. Show the amount of funding and a description of the program.

Answer: Defense Programs' support of science education helps ensure the long term supply of qualified employees for the Defense Programs laboratories in that it increases scientific literacy, increases the number of science, mathematic, and engineering graduates and increases the participation of traditionally underrepresented groups in science and engineering careers in the regions close to them.

The Education initiatives support crosscutting science education activities within the Defense Programs laboratories and the Nevada Operations Office in partnerships with schools and students ranging from kindergarten to graduate school. Collaborative programs are encouraged to leverage our unique sources of our national laboratories and facilities to support science and math education through teacher/faculty enhancement, curriculum improvement, institutional improvement, student support. Historically Black Colleges and Universities and minority institutions. Other efforts such as education technology, public understanding of science and other research opportunities, workshops, and institutes, presentations and demonstrations, and hands-on science, mathematics, engineering, and technology activities are supported as appropriate.

The following table provides a breakout by activities of the Defense Programs education program. Please note that the numbers and programs identified here are based on actual accounting data and are the most current science education efforts at our operations offices, laboratories and Headquarters. The numbers and programs identified in the January 1995 report to the Senate and House on Department of

Energy education activities funded by National Security Programs, were preliminary estimates.

DEFENSE PROGRAMS
FUNDING BREAKOUT FOR EDUCATION PROGRAM
(Dollars in Thousands)

	FY 94	FY 95	FY 96
LOS ALAMOS NATIONAL LABORATORY	<u>\$5,700</u>	<u>\$6,300</u>	<u>\$6,300</u>
Eclipse Experiment	131		
Assessment/Development of Workshops	114		
Neighborhood Environmental Watch Network	53		
Telecommunications in Education 94 Conference	56		
Reserve for Science Fairs, Conference Displays, etc	131		
Science Olympiad Broadcast Project	210		
Assessing Mid-School Students			
Understanding of Science	73	173	
High School Summer Institute	67	110	
Technical/Vocational Outreach	473	450	
New Mexico Supercomputing Challenge	601	550	450
Underrepresented Minority/Female Initiative	525	500	450
Teaching Hearing-Impaired Students to Speak	325	350	300
Education Technology/Distance Learning	282	300	150
Geographic Network/Teacher Opportunities to			
Promote Science Electronic Bulletin Board	196	233	150
Robotics (formerly Cyberpede)	85	200	150
MegaMath	131	156	150
Science Outreach	121	162	160
Systemic Change Support	105	139	160
Atomic, Molecular and Optical Physics Summer School	105	105	105
Pre-Service Institute for Science and Math	101	157	157
Teacher Resource Center	79	205	300
Exploring Science Careers	79	99	99
High School Critical Issues Forum	83	127	140
National Teacher Enhancement Program	75	178	78
Perspectives/Science Newsletter	32	61	87
Science Bowl	27	55	50
External Evaluation of Education Projects	315	100	100
Equipment Loan Program	180	140	100
Historically Black Colleges and Universities	840	900	900
Summer of Applied Geophysical Experience	105		100
Educational Technology Assessment		150	
International Science Partners (replaces Olympiad)		150	200
Technology Planning Support for School Districts		300	300
Online Education Information database		250	125
Two-Year College Initiative			425
Tracking Storms Using Weather Stations			301
Students Examining Issues in Science, Tech and Society			100
National Geographic Kids Network			40
Internetworking Models for Schools			250

Hypermedia Compact Disk	80
Practical Applications for Young Science Communications	90
Cable News Network Electronic Field Trip	50

	FY 94	FY 95	FY 96
SANDIA NATIONAL LABORATORIES	<u>\$7,328</u>	<u>\$6,000</u>	<u>\$6,200</u>
Science Advisors	2,500	2,080	2,080
Science and Technology Alliance	1,270	450	470
Education Technology	540	440	450
Resource Center	500	500	480
American Indian Community College Initiative	270	270	270
School Partners	250	250	250
University Pre-Service Initiative	230	230	300
Program and External Evaluation	160	150	200
Public Relations and Communications	150	150	150
Minority Engineering Project	60	60	0
Science Bowls	60	60	60
Summer Employment for Native Americans	50	50	60
Summer Employment for Minority Youth	20	20	60
Sandia (CA) Resource Center	170	170	170
Lawrence Hall of Science	150	150	150
Sandia (CA) Science Carnivals	490	490	450
Graduate Engineering for Minorities, Hands-on Minds-on Technology, Historically Black Colleges and Universities	458	480	600

	FY 94	FY 95	FY 96
LAWRENCE LIVERMORE NAT'L LABORATORY	<u>\$6,451</u>	<u>\$6,686</u>	<u>\$6,686</u>
Fun With Science	350	222	222
LOGO Classes and Team Logo	175	0	0
Regional Competitions	40	40	40
Partnerships with Industry and Education	0	140	140
School-to-Work Partnerships	25	258	258
Access to Science Teaching Careers	50	100	100
National Physical Science Consortium Students	275	275	275
Expanding Your Horizons Consortium	20	40	40
Take Our Daughters and Sons to Work Day	20	20	20
Speakers Bureau	250	300	300
Science Appreciation	200	50	50
Talking Scientist	100	130	130
Lab Technology Resource Center (LTRC)	600	875	875
Equipment Loan and Donation (combined with LTRC in FY 1995 and FY 1996)	250		
Systemic Workshops and Evaluation	350	531	531
Historically Black Colleges and Universities Projects	631	965	965
Science and Technology Inquiry Partnerships	150	348	348
Lawrence Livermore Education Science Study of Nature	91	0	0
Principals as Leaders in Science	50	0	0
Summer Research Internship	550	510	510
Biotechnology Education Project	450	420	300

Global Concern Curriculum	850	778	778
Global Climate Change	475	133	253
Student Science Research Associates (SSRA)	400	451	551
International Science Partners (combined with SSRA in FY 1996)	9	100	
Partnerships in Environmental Technology Education	90	0	0

	FY 94	FY 95	FY 96
OAKLAND OPERATIONS OFFICE	<u>\$114</u>	<u>\$114</u>	<u>\$114</u>
3+2 Fort Valley State/UNLV Partnerships with Local Historically Black and Colleges and Universities and Minority Institutions - employment			
ALBUQUERQUE OPERATIONS OFFICE	<u>101</u>	<u>100</u>	<u>100</u>
Special Employment Programs Historically Black Colleges and Universities and Minority Institutions Minorities in Engineering and Science Education - Collaboration with Sandia National Laboratory (NM)			
NEVADA OPERATIONS OFFICE	<u>790</u>	<u>600</u>	<u>600</u>
3+2 Dual Degree Program Jason ("The Robot") Science Bowl Partnership with Clark County			
HEADQUARTERS		<u>200</u>	
Historically Black Colleges and Universities and Minority Institutions activities			

*Totals may not add due to rounding.

Question: Also provide a breakout of the request by education level, University, or Lab.

Answer: The following table provides a breakout by education level of the Defense Programs Education program.

**DEFENSE PROGRAMS EDUCATION PROGRAM
BY EDUCATIONAL LEVEL
FY 1994-FY 1996
(Dollars in Thousands)**

	FY 1994	FY 1995	FY 1996
K-12	\$11,992	\$11,245	\$11,475
Undergraduate/Graduate	7,222	7,327	7,304

	FY 1994	FY 1995	FY 1996
Public Literacy	<u>1,270</u>	<u>1,428</u>	<u>1,221</u>
Total*	\$20,484	\$20,000	\$20,000

- * In FY 1994, reprogrammed \$483,546 from Weapons Program Direction to the Defense Programs Stockpile Stewardship education program to support Historically Black Colleges and Universities activities through North Carolina A&T.

Tritium Supply

Question: Briefly discuss the various options being considered for tritium production and their pluses and minuses.

Answer: With regard to environment, safety, and health considerations, the accelerator option uses no fissile material, therefore generating no spent fuel. It produces much less low level and hazardous waste than the reactors and has no potential for a severe accident having offsite consequences. Therefore, from an environment, safety, and health perspective, the accelerator is relatively "site-neutral," whereas there are substantially different impacts (particularly potential accident impacts) for the reactors, depending upon the site selected for evaluation. The reactor options have less potential to impact water resources and do not have the environmental impacts associated with an accelerator's relatively large demand for power. The accelerator, however, is easier to decontaminate and decommission at the end of life than a reactor. The environment, safety, and health impacts of the accelerator and each of the reactor options are discussed in Chapter 4 of the Draft Tritium Supply and Recycling Programmatic Environmental Impact Statement, which has now been published for public review and comment.

The Department is also examining technology, cost, institutional, and policy issues associated with each option. Completion of these analyses is necessary to support a decision on a tritium production source, and to provide a complete and comprehensive discussion of the pros and cons associated with each option.

Weapons Dismantlement and Plutonium Pit Storage

Question: Discuss the dismantlement program especially as it relates to schedules and delays to meet both START and START II level.

Answer: Dismantlement delays do not effect our commitment to meet the START or START II treaty. This is because warhead dismantlements are not required to meet the conditions of the treaty. Under START and START II strategic launchers must be eliminated.

Warhead dismantlement schedules are planned jointly with DOD and are based on retirement schedules. Considerations in addition to the retirement schedule include: warhead design, warhead safety and security, base closure, and efficient utilization of resources.

Weapons Dismantlement and Plutonium Pit Storage

Question: Is there sufficient space to store all retired weapons and those planned for future retirement?

Answer: Sufficient space exists to store weapons that have either been retired or are scheduled to be retired. The continued storage of retired weapons at DoD sites may impact our ability to realign or close DoD military installations in the future.

Question: What agreements or understandings has DOE entered into that impact on the storage of Plutonium pits removed from dismantled weapons?

Answer: In January 19, 1994, the Department completed an Environmental Assessment and issued a Finding of No Significant Impact covering the Interim Storage of Plutonium Components at the Pantex Plant. In the Finding of No Significant Impact, the Department committed to store no more than 12,000 pits at Pantex until it completes a site-wide Environmental Impact Statement covering all current and proposed facilities and activities at Pantex. A Record of Decision for this Environmental Impact Statement is to be issued by November 15, 1996.

Question: When does the interim agreement for storage of Plutonium pits at Pantex run out and how will that impact DOE's ability to dismantle retired nuclear weapons?

Answer: The Finding of No Significant Impact for the Interim Storage of Plutonium Components at the Pantex Plant committed the Department of Energy to store no more than 12,000 pits at Pantex until it completes a site-wide Environmental Impact Statement and issues a Record of Decision by November 15, 1996.

The commitment does not impact the Department's ability to dismantle retired nuclear weapons in that the limit of 12,000 pits well exceeds the number of scheduled dismantlements to be accomplished before the stipulated date for the Record of Decision. Currently, the site-wide Environmental Impact Statement preparation activities are on schedule to meet the November 15, 1996, Record of Decision.

Question: What storage options are being explored and when will they be available to store pits?

Answer: Alternative sites to interim pit storage at Pantex will be explored in the Pantex Site-Wide Environmental Impact Statement. The Record of Decision is scheduled to be no later than November 15, 1996. The Department of Energy has identified and will assess Hanford, Nevada Test Site, and the Savannah River Site as alternatives for interim pit storage in the environmental impact statement. To date, the Department of Defense has identified two sites that meet the criteria established for further study within the site-wide environmental impact statement. They are Seneca Army Depot and the Manzano Facility at Kirtland Air Force Base. Both the Army and the Air Force, respectively, have been requested to be cooperating agencies for the Environmental Impact Statement. Their acceptance has not been obtained to date, but would acknowledge the availability of the site to the Department of Energy,

should it become a preferred alternative. Both sites were recently proposed for the 1995 Base Realignment and Closure (BRAC) list.

Weapons Dismantlement and Plutonium Pit Storage

Question: Do you have any concerns regarding DOE's dismantlement and storage program?

Answer: DoD is concerned that DOE will not meet its projected goals for the rate of weapon dismantlement. The present backlog has repercussions in the retirement of DoD weapons and realignment of DoD facilities.

Question: What are the impacts on DoD if the DOE dismantlement schedule is stretched out?

Answer: The schedule of realigning a DoD base may be affected if DOE is forced to lengthen the dismantlement schedule.

Arms Control and Nonproliferation

Question: Has DOE developed a plan on how to allocate and spend the \$47 million requested for Materials Protection, Control, and Accounting (MPC&A)?

Answer: The Department of Energy, with the agreement of the relevant executive branch agencies, has accepted primary responsibility for implementing the material protection, control and accounting activities (MPC&A) of the U.S. Government. The goal of the activity is to rapidly secure nuclear material which exists in the Russian military and civilian nuclear complex and is useable in weapons. The strategy for utilizing these funds incorporates three elements: improving facilities, deploying technology, and instituting national level standards and systems.

All plans for this work are developed in collaboration with the relevant executive branch agencies.

In FY96, the Department has requested \$70 million for the MPC&A efforts of the U.S. Government. The \$70 million (\$47 million in program funds plus \$23 million for capital equipment) has been requested for three initiatives:

- \$40 million for the laboratory-to-laboratory program
- \$20 million for government-to-government cooperation
(this will build upon existing Nunn-Lugar efforts)
- \$10 million for government-to-government cooperation with Gosatomnadzor (GAN)

An integrated action plan for the laboratory-to-laboratory program was completed in September 1994. This plan formed the basis of the \$40 million request in FY96. Subsequent discussions with Russian laboratories and institutions have expanded the scope of work beyond that originally envisioned in the September plan.

An updated plan is being prepared on the basis of this new information. The laboratory-to-laboratory program focuses on upgrading security at high priority facilities and developing and deploying technologies across the Russian nuclear complex.

In FY95, government-to-government cooperation on MPC&A is being carried out using Nunn-Lugar funds. Beginning in FY96, it is proposed that this work be carried out by the Department of Energy. A plan for the allocation of this \$20 million is currently being developed. It will primarily focus on securing direct-use material at high priority facilities in the former Soviet Union. In part, the allocation will depend on negotiations currently underway with the Russian Ministry of Atomic Energy on expanding the number of sites subject to cooperation. The plan may include scopes of work at defense-related facilities initially proposed for implementation under the laboratory-to-laboratory program, but which would push that program element above the \$40 million level. The Department is confident that the requested \$20 million can be effectively utilized under the government-to-government cooperation in FY96 as large numbers of facilities are in need of safeguards upgrades and the Russian government has exhibited a greater willingness to collaborate with the United States in this area.

The DOE-GAN work will focus on creating a standardized national system for safeguarding nuclear material. This cooperation grows out of a letter of intent to cooperate that was signed in October 1994. A draft agreement for cooperation between DOE and GAN is currently being circulated for comment in the executive branch. It is anticipated that this agreement can be completed before FY96. A preliminary plan has been developed for the DOE-GAN program. It will be updated consistent with the Agreement for Cooperation.

Arms Control and Nonproliferation

Question: Briefly review the Nunn-Lugar program under which Congress has already appropriated funding for these types of programs.

Answer: Congress initiated the Cooperative Threat Reduction (CTR) program in late 1991 to reduce the threat to the US from weapons of mass destruction and associated fissile materials in the former Soviet Union. As Senators Nunn and Lugar led the Congressional effort to provide the Department of Defense authority and funding for CTR, it is often referred to as the "Nunn-Lugar" program. Through the CTR program, DoD provides assistance to the eligible states of the former Soviet Union to reduce the threat of weapons of mass destruction and prevent weapons proliferation. In addition, CTR is helping three of the NIS -- Ukraine, Belarus, and Kazakhstan -- denuclearize entirely in accordance with their international commitments.

There are currently 36 separate projects with implementing agreements and memoranda of understanding between the US and Russia, Ukraine, Belarus, and Kazakhstan. These projects are in the areas of :

Destruction and Dismantlement

- to facilitate destruction and dismantlement of strategic offensive arms, chemical, and other weapons of mass destruction;

Chain of Custody

- to establish verifiable safeguards against the proliferation of such weapons;
- to transport, store, and safeguard weapons in connection with their destruction;

Demilitarization

- to facilitate demilitarization of defense industries and conversion of military capabilities and technologies;
- to expand defense and military contacts between the US and former Soviet states; and
- to prevent diversion of weapons related scientific expertise.

Question: Are the lab-to-lab/country-to-country programs proposed in the 1996 budget types of activities envisioned under Nunn-Lugar?

Answer: In FY95 and prior years, MPC&A activities in the former Soviet Union (FSU) have been funded by the Nunn-Lugar program. Beginning in FY96, it is proposed that the Department of Energy be responsible for funding and implementing U.S. MPC&A activities. Under this proposal, the Nunn-Lugar program would not allocate any funds appropriated for FY96 and outyears for U.S. MPC&A activities in the former Soviet Union.

Question: Has DOE requested transfer of Nunn-Lugar money to implement Materials Protection, Control, and Accounting (MPC&A)?

Answer: In FY95 and prior years, funds appropriated to the Nunn-Lugar account and allocated to MPC&A activities in the former Soviet Union are being transferred to the Department of Energy for implementation of Nunn-Lugar MPC&A activities in Russia, Ukraine, and Kazakhstan. The transfers were conducted under the Interagency Cost Reimbursement Order (IACRO) process. In FY95, \$15 million has been proposed for transfer from the Nunn-Lugar account to DOE for work to be carried out under the laboratory-to-laboratory program.

Question: What is the rationale for appropriating large increases to DOE when Nunn-Lugar funds have not been spent?

Answer: Nunn-Lugar funds appropriated for FY95 and prior years have been allocated for MPC&A activities in Russia, Kazakhstan, and Ukraine.

For Russia, \$30 million has been allocated for MPC&A activities. Close to \$10 million of this will be spent in upgrading nuclear material security at the low enriched uranium line at the Elektrostal fuel fabrication plant. This \$10 million was the amount contained the agreement signed between the Department of Defense and the Russian Ministry of Atomic Energy in 1993. This agreement was amended in January 1994 to raise the amount of funds available to \$30 million and include language which allows

cooperation on securing nuclear material that is directly usable in weapons. At the time the amendment was signed, the United States and Minatom also agreed on a list of six high priority facilities where additional work would be completed. The United States believes that the upgrades at these sites will consume the remaining \$20 million. In addition, \$15 million in FY95 Nunn-Lugar funding has been proposed for transfer to the Department of Energy for laboratory-to-laboratory MPC&A. The Department believes that all of these funds will be expended by the end of FY95.

For Kazakhstan and Ukraine the Nunn-Lugar program has allocated \$17.5 million for work at three facilities. Two of these facilities contain only low enriched uranium. Additional Nunn-Lugar funds may be allocated for work at five high-priority facilities at Kazakhstan and Ukraine in FY95. These facilities contain direct-use material. It is anticipated that these FY95 funds would be spent on an expedited basis.

The rationale for requesting \$70 million in additional funds for the former Soviet Union MPC&A is based on the need to continue to cooperate with the governments of the former Soviet Union states, particularly Russia, and individual research facilities and institutes to ensure that nuclear materials suitable for use in nuclear weapons are accounted for and protected. The funds requested will be allocated to the laboratory-to-laboratory MPC&A program, government-to-government cooperation to improve nuclear material security, and the initiation of cooperation with Gosatomnadzor to assist in the establishment of a national-level system of nuclear material safeguards. Based on U.S. Government assessments, 80-100 facilities in Russia contain nuclear material that is directly usable in nuclear weapons. Securing this material on an expedited basis is a high priority for the U.S. Government.

Arms Control and Nonproliferation

Question: How much has been appropriated under Nunn-Lugar?

Answer: Since FY 1992, Congress has authorized a total of \$1.6 billion in Department of Defense transfer authority or appropriations for CTR assistance. However, \$330 million of the authority has expired, leaving \$1.27 billion in total obligation authority.

Question: How much has actually been spent?

Answer: As of 27 February 1995, DoD had obligated \$497.9 million.

Question: What are the unobligated, unallotted, and uncosted balances?

Answer: Although \$330 million of the authority has expired, the United States has proposed to obligate \$1.18 billion of the \$1.27 billion in existing authority.

Question: Have all of the FSU lab-to-lab/country-to-country material control activities been consolidated under MPC&A? If not, why?

Answer: All work with the former Soviet Union on nuclear material protection, control and accounting is consolidated under the Department of Energy Office of Arms Control and Nonproliferation. All funds for FY96 former Soviet Union MPC&A are requested in the Verification and Control Technology budget. In the Material Protection, Control and Accounting account, \$47 million has been requested. In the Capital Equipment account, \$23 million has been requested.

Question: If the materials control activities have been transferred to the MPC&A program, explain why the budget request under International Safeguards indicates continued activity in 1996 and a budget request of \$21,229,000, the same as FY 1995?

Answer: The FY96 request of \$21,229,000 for International Safeguards is requested for United States support to the International Atomic Energy Agency (IAEA) and the United Nations to strengthen international safeguards. High priority programs have been established since FY92 to: detect clandestine nuclear facilities, implement IAEA Safeguards on excess U.S. nuclear materials, support the implementation of IAEA safeguards in North Korea, support IAEA environmental sample analysis, and maintain the International Nuclear Analysis system.

The FY95 description of International Safeguards program activity contained in the Department of Energy budget request for FY96 states that a significant amount of program activity is focused on MPC&A in the former Soviet Union. This is true because much of this MPC&A work is being implemented through the International Safeguards Division of the Office of Arms Control and Nonproliferation. However, almost all of the funds provided for this work were transferred from the Nunn-Lugar program.

The description of FY96 program activity for International Safeguards indicates a continuation of these FY95 MPC&A program activities because it is anticipated that the International Safeguards Division will continue to remain central to MPC&A implementation in the former Soviet Union. The funds for this work now are contained in the FY96 budget requests titled Material Protection, Control and Accounting and Capital Equipment.

Question: What is the justification for the Capital Equipment request increasing from \$673,000 in 1995 to \$24 million in 1996? Provide a detailed breakout of the \$23.9 million being requested for Capital Equipment.

Answer: The FY96 capital equipment request includes the following items:

Reduced Enrichment for Research and Test Reactors	\$300,000
International Safeguards	373,000
Export Control	300,000
Material Protection, Control and Accounting (MPC&A)	23,000,000

The Export Control request supports the Proliferation Information Network System, specifically the purchase of file servers and encryption equipment.

The International Safeguards request supports the Safeguards information Management System, Remote monitoring project, environmental monitoring to support the International Atomic Energy Agency, and equipment to support international agreements on safeguards implementation.

The Reduced Enrichment for Research and Test Reactors request will allow the purchases of equipment for the advanced fuel development program.

The Material Protection, Control and Accounting request is for the purchase of equipment that will be installed at Russian facilities and institutes. The equipment includes sensors, portal monitors, special nuclear materials measurement equipment, cameras and surveillance equipment, computerized control and accounting equipment, and inspection equipment.

The request for MPC&A equipment is based on estimates of the scope of work to be completed in FY96. This work falls under the laboratory-to-laboratory and government-to-government programs for cooperation.

Based on estimates completed to date, it is projected that about \$15 million in the capital equipment requested would be utilized under the laboratory-to-laboratory program and the remaining \$8 million allocated to government-to-government activities.

Dual-Axis Radiographic Hydrodynamic Test Facility

Question: What is the current status and schedule for complying with the court orders relative to the DARHT facility?

Answer: All construction and procurement for the Dual-Axis Radiographic Hydrodynamic Test Facility (DARHT) facility has been stopped pending the completion of the DARHT Environmental Impact Statement (EIS) as directed by the court. The Department will issue the draft EIS in May, and the Record of Decision is expected mid-September 1995.

Question: How important is this facility to the Department's science-based Stockpile Stewardship effort and maintaining the national nuclear deterrent?

Answer: Some of the weapons in the Nation's stockpile are approaching the end of their design life, and it is not certain how they may be affected by the aging process. The three-dimensional condition of the various internal components of weapons as they age presents certain challenges. Multiple view hydrodynamic experiments to look at the flow of adjacent materials as they are driven by high explosives and dynamic experiments to study other effects of high explosives, combined with computer modeling, provide an acceptable means of obtaining these data in the absence of nuclear testing. DARHT is designed to provide multiple views as well as increased resolution from accelerator advances. These experiments would

enhance the Department's confidence in the safety and reliability of the aging weapons, and thus are important to maintaining the national nuclear deterrent in the absence of testing.

Question: What is DOE doing to expedite completion of the EIS?

Answer: A special DOE team has been established to prepare the EIS, and an ambitious schedule has been established to complete it.

Question: Is there any danger that the project will be delayed beyond the Department's record of decision?

Answer: Further progress on the project will depend on whether the Record of Decision (ROD) supports the construction of DARHT, and the subsequent review of the ROD by the court upon its completion.

Question: What would the impact be on the national security if the project is not completed or significantly delayed?

Answer: Most of the existing nuclear stockpile will reach its intended design lifetime in the next 5 to 10 years, and our experience with the effects of aging nuclear weapons is limited. The enhanced capability of DARHT would enable us to determine when problems will demand immediate attention, since any problems revealed by the testing of mock nuclear weapon primaries are reliable predictors of the nuclear performance of actual primaries. If DARHT is not completed or delayed beyond the completion of the EIS, the critical information to be derived from these baseline experiments will not be available when these nuclear weapons age beyond their intended lifetime, thereby increasing the probability of nuclear safety and/or reliability concerns. There are only two other radiographic hydrotest facilities in the DOE laboratory complex: PHERMEX (Pulsed High Energy Machine Emitting X-rays) at LANL and the FXR (Flash X-ray) facility at LLNL. PHERMEX is 30 years old, utilizing obsolete technology and is nearing the end of its effective life. Until DARHT's first axis is built and tested, FXR is the premier hydrotest facility in the laboratory complex. It represents the Nation's only real capability to conduct core punch tests on weapon primaries at this time. If PHERMEX were to become unmaintainable and if the FXR facility were to close down until experiments there can be contained, the Nation could be left with a gap of up to 5 years in core-punch capability until the next generation hydrotest facility is finally operational. Without the capability provided by DARHT, DOE's ability to adequately discharge its responsibility to certify the safety, reliability and performance of the stockpile without conducting underground nuclear testing would be problematic.

Nuclear Weapons Complex Reconfiguration

Question: What is the Department's vision of the size and make-up of the nuclear production complex of the future?

Answer: Since the end of the Cold War, the number of nuclear weapons in the active stockpile has been reduced by 59 percent and will be reduced by 79 percent by

2003. There is no requirement for new weapons for the foreseeable future, and there is a moratorium on nuclear testing. The President has challenged us to explore other means of maintaining our confidence in the safety, reliability, and performance of our weapons. This is a difficult and demanding task. To ensure weapons confidence, we must develop a deeper scientific understanding of weapons and weapons physics and must keep an active cadre of world-class scientists doing world-class science. We must significantly enhance our stockpile surveillance capability and we must learn how to remanufacture weapons and components with a smaller and more agile complex. We must have an assured supply of the radioactive gas, tritium, since tritium decays at about 5 percent per year and is a necessary component of every weapon in the stockpile. The specific future complex to address the needs described above will be determined in cooperation with the Programmatic Environmental Impact Statement process. The Department released on March 1, 1995, the draft tritium Programmatic Environmental Impact Statement and will be announcing a notice of intent to do a Programmatic Environmental Impact Statement on Stockpile Stewardship and Management in the next few months.

Question: What are the benefits and liabilities of such a consolidation?

Answer: Because the number of weapons in the stockpile will be smaller and the enduring stockpile must be affordable, we will be challenged to reconfigure the weapons complex to be as inexpensive as possible while complying with environment, safety, and health requirements. In general, we expect that this will mean consolidating required functions to as few sites as possible. We expect to have a capability-based rather than capacity-based complex, which relies more on scientific understanding and manufacturing agility than test empiricism and manufacturing capacity. The weapons laboratories must assume more responsibility for production capability in addition to their traditional research and development responsibilities.

Clearly, the benefits of this consolidation are that operation of the future complex will be less expensive. However, there will be transition costs and necessary investments will have to be made. Again, the analysis of this overall strategy will be included as part of the Environmental Impact Statement process.

Question: What are the major budgetary requirements associated with both nonnuclear and nuclear complex consolidation?

Answer: As stated earlier, our goal is to create a more affordable weapons complex, but there will be transition costs and necessary investments. The specific cost estimates will be provided as part of the Environmental Impact Statement process.

Weapons Laboratory Consolidation

Question: Do you agree with the Galvin Commission's recommendation to transfer Lawrence Livermore's nuclear materials development and production activities to Los Alamos?

Answer: The Department supports the study of a careful phase-down of some of Lawrence Livermore's nuclear weapons work, combined with a reemphasis on non-proliferation, counter-proliferation, and verification activities. The Department is in the process of developing options for discussion of this issue within the interagencies and expects to forward a recommendation to the President not later than October 31, 1995. Timing and details of phase-down will depend on an assessment of how best to meet continuing national defense requirements in the absence of testing. Alternative methods of retaining peer review will be examined to provide a basis for any decisions.

Question: How would the weapons activities' peer review system be affected by such a consolidation?

Answer: The affect of such a consolidation on the peer review process would depend on what type of alternate peer review structure was established. The reason that the current peer review system works is that the results of all aspects of the review process are independent. The following aspects are needed for true independence: 1.) Independent management structure; 2.) independent computational facilities; 3.) independent experimental facilities; and 4.) independent support staff and facilities (e.g., chemistry, engineering, etc.). Because the systems that are being evaluated are so complicated, they must be studied from fundamentally different directions, using different approaches, both experimental and computational. If similar answers are obtained from these differing approaches, then the results have a greater chance of being correct.

If the peer review system were attempted at a single facility, with the same management, the same experimental data, and the same computational codes, then the same answers would be obtained, but there would not be any increased level of confidence in the answers. Because the work force at the laboratories has decreased, capabilities are being reduced. Since there is no underground nuclear testing, the peer review process is more important than ever. Thoroughly independent assessments are needed in evaluating the use of alternate technologies such as pulsed power, X-radiography and lasers.

Counterproliferation

Question: Could you describe the status of the FY 1995 Counterproliferation effort -- as well as the Administration's plans for FY 1996?

Answer: The number one priority in our 1995 program is the proliferation of chemical and biological weapons. Nations developing these weapons are making increased use of underground storage and development facilities. The challenge for the future will be to be able to locate, attack, and destroy these facilities and minimize the damage to the local population and environment.

Counterproliferation

Question: Dr. Reis, how is the Department of Energy coordinating its counterproliferation efforts with the Department of Defense?

Answer: The two Departments are coordinating our counterproliferation efforts in accordance with a mutually-agreed-to Memorandum of Understanding signed on July 21, 1994, by John M. Deutch, Deputy Secretary of Defense, and Charles B. Curtis, Under Secretary, Department of Energy, and a Program Management Plan that is being finalized. These two documents delineate the objectives, scope, lines of authority and responsibilities, and means by which required efforts will be identified, and managed. A Senior Management Review Group, chaired by the Assistant to the Secretary of Defense for Atomic Energy, Dr. Harold Smith; and vice-chaired by the Director, Office of Nonproliferation and National Security, Mr. Kenneth E. Baker, will aid the DoD and DOE in accomplishing the DoD counterproliferation mission. The DOE lead responsibility resides within the Office of Nonproliferation and National Security. My office and our laboratories will support this effort.

QUESTIONS SUBMITTED BY SENATOR HATFIELD

Hydronuclear Experiments

Question: Please provide the Subcommittee the Department of Energy's evaluation of the JASON report. Is DOE in general agreement with the recommendations made by the JASON panel?

Answer: There has been no official Department of Energy evaluation of the JASON report; however, we are in general agreement with its findings.

Question: Although the report was very supportive of hydrodynamic testing, it was negative toward hydronuclear testing. Does the Department of Energy agree with this particular recommendation?

Answer: The JASON's study is one of the studies that the Department will take into account as it addresses the issue of hydronuclear experiments. The Department has no plans to conduct hydronuclear tests in FY 1995 or FY 1996.

Question: In January, the President indefinitely extended the U.S. moratorium on underground nuclear weapons testing, and withdrew a U.S. proposal to allow an easy resumption of nuclear tests 10 years after a global test ban goes into effect. At the same time, I understand that the President deferred a decision on the use of hydronuclear experiments. Has the Administration taken a final position on the issue of hydronuclear testing?

Answer: One of the most complicated and challenging issues in the Comprehensive Test Ban (CTB) negotiations is the question of what kinds of experiments and other stockpile stewardship activities will be permitted under the treaty -- what our negotiators call "treaty compliant activities." The U.S. position with regard to these activities is determined on the basis of three criteria.

- The CTB Treaty must be comprehensive and promote our vital national interest in curbing the further proliferation of nuclear weapons;
- the CTB Treaty must not prohibit activities required to maintain the safety and reliability of our nuclear stockpile; and
- the CTB Treaty must be signed by all declared nuclear states and as many other nations as possible.

As the negotiations proceed, the United States will continue to review its position on this issue to ensure it meets these criteria.

Question: Are funds included in your FY 1996 budget request for hydronuclear experiments?

Answer: No funds are included in the FY 1996 budget request for hydronuclear experiments.

Question: If a decision to implement Hydronuclear tests were made before or during FY 1996, could the Department make funds available for this activity without submitting a reprogramming request to the relative House and Senate committees?

Answer: I can assure you that we would not reallocate any funding for hydronuclear testing without first notifying the appropriate congressional committees.

Light Water Reactor Tritium Target Development

Question: What level of funding is included, or could be made available, in your FY 1996 budget request for light water reactor tritium target development activities?

Answer: In FY 1996, the Department expects to spend approximately \$4 million of the \$50 million requested for a new tritium source to continue work on the light water target development program. This money would be used to develop full-length target test rods and begin preparation for tests of the full-length rods. The first step in either case is the analysis of a number of target test segments that have already been irradiated. The Department is also requesting reprogramming of prior year funds to initiate this activity in FY 1995 by analyzing a number of target test segments that have previously been irradiated.

New Tritium Source

Question: I understand that the final Record of Decision on the Programmatic Environmental Impact Statement for a new tritium source will be signed in November 1995. Please explain the relationship between the Record of Decision and your request to continue light water reactor tritium target development activities?

Answer: The Nuclear Weapons Council has requested that the DOE take steps to support the contingency option, in the event of a national emergency, of producing tritium in a commercial light water reactor. The completion of a light water reactor

target development program is necessary to support such a contingency. In addition, if the Advanced Light Water Reactor Technology is selected by the Record of Decision as the technology to be used for a permanent tritium production source, the completion of these target development activities would. Finally, completion of the light water target development program would also be necessary if an existing reactor were to be purchased and converted to defense purposes.

QUESTIONS SUBMITTED BY SENATOR REID

Status of the Underground Contained Burn Project

Question: I understand that the Department of Defense is prepared to transfer funds to the Department of Energy to conduct Underground Contained Burn experiments in the tunnels at the Nevada Test Site. Can you confirm for me that this project is moving forward and we can expect to see work begin in 1995.

Answer: We do not see any problems at the present time with this project. The draft statement of work for these activities was received by DOE from the DOD on February 27, 1995. After our review, we held a meeting with DOD on April 13, 1995, where agreement was reached on the statement of work. DOD is initiating the process of transferring the funding of approximately \$7 million to DOE, which is expected to be complete by May 31, 1995. Once funds are received, work will begin on preparing the specific plans and obtaining the necessary permits needed to demonstrate the technologies listed in the DOD statement of work consistent with the funding level received.

Liquefied Gaseous Fuels Spill Test Facility

Question: I understand that your office has taken over the responsibility of the Spill Test Facility at the Nevada Test Site. Would you please state for the record the unique capabilities of this facility and its importance to the national security program.

Answer: The Liquefied Gaseous Fuels Spill Test Facility (LGFSTF) is ideally suited to developing verified data on prevention, mitigation, clean-up, and environmental effects of toxic and hazardous materials. The LGFSTF is a one-of-a-kind facility for testing either large or small scale releases of hazardous chemicals with added capability of large scale wind tunnel testing. This research and demonstration facility is available on a user-fee basis for private and public sector testing and training sponsors concerned with safety aspects of hazardous chemicals.

The facility promotes industrial competitiveness by enabling the private sector to improve their understanding of potential impacts resulting from hazardous materials releases into the environment and to apply this information to supplement risk management capabilities. These capabilities also enable the Department to more effectively plan risk management associated with hazardous materials in the custody of the Department.

The existing chemical release infrastructure at the LGFSTF, coupled with existing permission to release hazardous chemicals, are invaluable and cannot be easily

duplicated anywhere else in the country. Currently, 30 chemicals are permitted for release with more expected to be available in the future. Environmental and safety regulations prohibit most meaningful hazardous chemical releases at laboratories, however, such releases can be conducted at the LGFSTF.

The Office of Nonproliferation and National Security is conducting tests at the facility in support of its nonproliferation and emergency preparedness missions. The primary interest of the Office of Nonproliferation and National Security is to conduct tests in support of the Chemical Analysis by Laser Interrogation of Proliferation Effluents (CALIOPE) program. The CALIOPE program needs a quantified gas release source to conduct long range laser remote sensing technology development experiments. The wind tunnel at the facility provides an excellent source for the CALIOPE quantified gas release. Some of the gases released during the tests are hazardous, and can only be released in a very controlled situation, requiring extensive environmental permitting. The LGFSTF is the only facility in the country with the combination of existing equipment and environmental permits where this testing can be carried out. Providing this capability at another site would cost at least \$10 million and many years to secure required environmental permits.

CALIOPE is a technology development program which requires a quantitative test program in order to obtain necessary data. For the CALIOPE Program, LGFSTF offers the opportunity to use the wind tunnel as a quantitative source and to release target effluents.

SUBCOMMITTEE RECESS

Senator DOMENICI. Thank you, the subcommittee will stand in recess.

[Whereupon, at 11:50 a.m., Wednesday, March 1, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 1996

TUESDAY, MARCH 14, 1995

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 9:40 a.m., in room SD-192, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici, Gorton, Burns, and Johnston.

DEPARTMENT OF ENERGY

OFFICE OF ENERGY RESEARCH

STATEMENT OF DR. MARTHA A. KREBS, DIRECTOR

OPENING STATEMENT OF SENATOR DOMENICI

Senator DOMENICI. The subcommittee will please come to order.

This morning, the Energy and Water Development Subcommittee will focus on fiscal year 1996 budget requests for the Department of Energy's nondefense, basic research efforts.

Our sole witness will be Dr. Martha Krebs, Director of the Office of Energy Research.

Total fiscal year 1996 budget request for the Office of Energy Research is approximately \$2.752 billion, a \$90 million increase over the fiscal year 1995 enacted level. Programs and activities under the jurisdiction of the Office of Energy Research include magnetic fusion, high energy nuclear physics, the human genome project, global climate change research, to name just a few.

The Department of Energy plays an important role in funding a wide variety of the Nation's basic science research programs. We are interested to learn how the Department plans to operate and sustain these programs in the future.

The lion's share of Dr. Krebs' budget directly funds research at one or more of the national laboratories. We are particularly interested in ensuring that those facilities that are needed are sufficiently funded and staffed to meet the new challenges facing the Nation as we enter the 21st century.

These will be difficult times when you consider the rescissions that are already taking place, plus efforts to get the budget under control and to get the deficits to where we can actually see a balance in the not too distant future.

We look forward to hearing your testimony today Dr. Krebs. And Senators who are here, if there are schedule conflicts, you might want to ask your questions before she testifies or you can hear the long statement and testimony, Senator Gorton?

OPENING REMARKS OF SENATOR GORTON

Senator GORTON. Well, I very much appreciate your willingness to let me go first because, as is the case, we always have conflicting hearings.

And I do have a conflicting hearing. And then I have to deal with something that is rather significant with respect to the Department of Energy, though not Dr. Krebs' area, with the issuance of the Blush report as it relates to the future of Hanford.

I do have a very specific question for her that I understand she knows is coming.

FISCAL YEAR 1995 RESCISSION

DOE issued a press release on February 24 declaring that the Environmental Molecular Sciences Laboratory [EMSL] and the Human Genome Laboratory were targets for \$15 million in rescissions.

The House Energy and Water Appropriations Subcommittee clearly said this \$15 million is for biological and environmental research as a general reduction to the entire operating program. This, it seems to me, clearly means that no single program, like EMSL is to take the entire hit.

Just so that we are clear, can you affirm for me that you understand that the \$15 million in the rescission bill is intended to be spread out over the entire biological and environmental research program, and not just the two programs that were mentioned in your press release?

Dr. KREBS. I believe, in fact, the press release mentions two projects and one operating expense program. I do understand that general reductions can be interpreted to be spread out over the whole program.

I do believe, also, that in these difficult times you have to make a choice between operating expense programs that have not increased and situations in which the primary increase between 1994 and 1995 was associated with construction of facilities including the EMSL at PNL and the human genome construction project at LBL.

And as a consequence, at least in the initial consideration, our choice was to extend or delay certain construction projects.

I certainly understand the concern of the Senator and anyone else who is facing this or supports these kinds of facilities. I do myself.

I took those reductions quickly and with regret. And I understand that we will have the opportunity to revisit and reconsider these reductions in a most efficient way this—

Senator GORTON. Where does EMSL fit into your science and technology strategies?

Dr. KREBS. Well, the Environmental Molecular Science Laboratory is at the center of the Office of Energy Research's approach to supporting and providing the basic science underpinnings for the

environmental remediation and waste management program within the Department.

As a user facility, it will bring not only new capability to the Pacific Northwest Laboratory, but it will also enable outstanding researchers from around the country to bring their talents to bear on the cleanup problems of the Department.

Senator GORTON. Finally, when will it be completed, either with or without this rescission?

Dr. KREBS. In fiscal year 1997.

Senator GORTON. One way or the other?

Dr. KREBS. If there are no delays.

Senator GORTON. OK.

Mr. Chairman, I greatly appreciate that. I do not agree with the interpretation of what, to me, is extremely clear language in that House rescission bill. But we will have to take that up in our own rescission bill. And you and I will discuss that at some future time.

But thank you for your answer to that question.

Senator DOMENICI. Is your meeting regarding nuclear cleanup? And what committee is that?

Senator GORTON. No, no; it is just a news conference for the Washington congressional delegation to respond to this Blush report.

Senator DOMENICI. Oh, are you opposed to what they recommend?

Senator GORTON. I have—there are some elements in it that I may not like, yes.

Senator DOMENICI. I figured that. [Laughter.]

Well, lots of us think it is good. But anyway, I will not be at your press conference anyway. Thank you very much, Senator Gorton.

Did you have an emergency that would require that you ask questions now, Senator Burns?

Senator BURNS. Do I look like I am a victim of an emergency sitting here?

Senator DOMENICI. You have looked that way since you arrived. [Laughter.]

Senator BURNS. Six years ago.

Senator DOMENICI. Right. [Laughter.]

You are doing better.

Senator BURNS. I just do the will of the chairman. I sit here.

Senator DOMENICI. Well, why don't you go ahead with some questions, if you have any?

REMARKS OF SENATOR BURNS

Senator BURNS. I have—I thank you, Mr. Chairman. I have a statement that I will just put in the record right now.

COORDINATION BETWEEN FEDERAL AGENCIES

I chair the Subcommittee on Science and Technology for NASA on the Commerce Committee. And, Dr. Krebs, I think it is about time we take a look at our research and development, because it is so scattered out among all of the agencies.

Visiting with the National Science Foundation, and then when we started to talk about the National Academy of Science, and then

we get down to NIST, the National Institute of Standards and Technology, and we have all of these things going on around us.

I am wondering if anybody has ever surveyed everything that we are doing in every Department. For example, Commerce, Energy, EPA, all have technology effects or are doing some R&D.

Should we be coordinating these facilities and activities by putting them under one umbrella? Have we looked at that? And can we be more efficient with our research and development?

Dr. KREBS. This is, I believe, obviously, in my past life before I was in this position—

Senator BURNS. Previous life. Let us not get into past life. [Laughter.]

Dr. KREBS. Oh, yes; previous, previous life.

Senator BURNS. Yes. [Laughter.]

Dr. KREBS. I, certainly, looked and followed the general issues of how the Nation makes its investment in basic research.

And I believe that, within the Government, outside of the National Science Foundation, where you are making investments in basic research simply to follow the best scientists' noses for good science, there are numerous agencies which the Congress and administration has determined have legitimate missions to pursue, and on behalf of the American people.

And it is important, I think, when those missions have technical and scientific requirements, that those agencies be able to support what I would call fundamental science that has a mission or a problem orientation.

Now, there is this issue of whether or not you duplicate research in one agency or another. Certainly, within this, it has been a challenge in previous administrations.

The last administration chose to establish something called the Federal Coordinating Committee on Science, Engineering and Technology.

This administration is doing something that is, actually, broader in concept. And that is the National Science and Technology Council. It is supported by nine committees. I happen to serve on three of them.

I think I have that right, the Committee on Environment and Natural Resources, the Committee on Civilian Industrial Technology and the Committee on Fundamental Science.

These fundamental programs that I am responsible for have an impact in all of these areas.

I believe that both before the creation of the National Science and Technology Council, and in this administration, we have been doing a very serious job at the level of the appointees, and at the level of some of the program managers who are involved in coordinating these programs.

Examples, the Global Climate Research Program that is carried out within the Biological and Environmental Research Program is coordinated across several agencies. And I believe that there is minimum overlap.

The Human Genome Program is another example where there is excellent coordination, both from the point of view of selection, investment and review between DOE and NIH.

In the case of materials science, where there is a huge investment across our numerous agencies. Between the Department of Defense, Department of Energy, and NSF,—and I think this is historical even within the Department of Energy, we work hard to leverage each other's investments.

So I think you can have a debate as to whether or not you need a single Department of Science. But I do believe that, as long as you have distinct missions that have science and technology requirements, then it is important to have focused science that supports those missions.

Senator BURNS. Well, this is a long way from your office, but the other day we were talking about, for the first time in the history of this country, yields on wheat are starting to drop.

Every time we lose a plant leader or a scientist in the Agriculture Department, he is not being replaced because they do not have the money. And so plant leaders and these people who study plant pathogens, and also in developing disease-resistant strains, we are losing those people.

I come from a background where one of the first things we do everyday after we get up is eat.

I believe we have an obligation to society to produce food and fiber. I believe we have an obligation to society to produce food and fiber. I am concerned about that. And we are lacking and overlooking that area in our research effort. Yet we are plunging forward into some areas where it seems like we have enough to do and sometimes, we are redundant in how we do it.

I am wondering how we move funds around in order to address pressing agricultural needs and get some money into or back into the agricultural sector. That is why I asked. That is the background on that.

Dr. KREBS. I understand.

Senator BURNS. Thank you, Mr. Chairman.

Senator DOMENICI. Thank you very much.

FISCAL YEAR 1995 RESCISSION

Let me just make a point in following up on Senator Gorton's question. I am looking at the House report the \$15 million fiscal year 1995 rescission comes under the heading of "Biological and Environmental Research."

And it says, "The committee directs that \$15 million be applied as a general reduction to the activities in the Biological and Environmental Research Program. The reduction to the fiscal year 1995 appropriation will still provide for a 3-percent increase over fiscal year 1994."

So, I think the point is that the Department chose, under that language, to reduce the project that you have asked questions about. That does not mean that is what the House had in mind, No. 1, nor that it is the only way to do it, No. 2, and No. 3, that is the way we will do it if we do it in the Senate.

Senator GORTON. You are right on all three counts.

DEPARTMENT OF ENERGY MISSION

Senator DOMENICI. Now, Dr. Krebs, would you proceed with your testimony. And would you abbreviate or summarize it as best you can. I understand you have several big programs and I am pleased

with the way you have been organizing the relationship of your science R&D to other scientific activities.

I might just comment that I am absolutely astounded when people talk about, including my friend Bob Dole, who normally chats with me on matters of significance and especially when they apply to my State, about doing away with the Department of Energy. So, somebody must have put him in a corner when he said, "Let us do away with the DOE."

But, essentially, what is really happening that people do not quite understand is that there is a dual-use, responsibility that has fallen on the Department of Energy that is rather exciting and that I am not at all sure we can duplicate.

That is, we have big, solid, basic research laboratories that are the world's best that are not there because of the basic science. They exist because of nuclear deterrent and defense activities which have historically been separated from the Department of Defense.

Now, it happens, when they are that good and have so much scientific capacity, that the Department of Energy which runs them builds on that scientific capability and infrastructure, both human and physical, to enhance other R&D and science programs within the Department. So that if you look at most of the science in DOE, it is, in some way, related to activities that you are doing because of other missions.

I am not at all sure we could find a better niche for these defense activities. In fact, I think if we start splitting it off, segmenting the defense laboratories in one place and putting the rest of the science somewhere else, under either a science department, or some other agency worries me.

Frankly, it seems to me we are going to have a much worse situation in terms of basic science research in these areas that you are going to discuss shortly. I think it would be better to discuss which of these we no longer want to fund and then analyze how that affects the laboratories and other things then.

Clearly, fusion energy is a program that is going to be on the table this year in a big way. We have continued to pour big money into it, on the expectation that it will end up in a \$6 billion program. And we still do not know whether that is a reality.

Now, I am not making any recommendations at this point as chairman of this subcommittee. But it does seem to me that I am going to proceed as if we have this Department around and we have these major efforts under your direction.

I want to say publicly, that I am not at all sure that those who talk about getting rid of the Department of Energy understand this, including my good friend, Senator Dole. I hope to get him to understand it better, as we move forward.

Please proceed, Dr. Krebs.

Senator BURNS. Like today at lunch. [Laughter.]

OPENING STATEMENT OF MARTHA A. KREBS

Dr. KREBS. Mr. Chairman and members of the subcommittee, it is really a pleasure to be here. And I am really proud to be part of these basic research programs that I am going to talk about today. I will try to be brief, not too long.

I am proud of the results. And I am especially proud of the people at the DOE, at the labs, at the universities who actually make it happen.

At DOE and the Office of Energy Research, we are trying to work smarter and be more cost effective. We look forward to supporting the Department's response to the Galvin report and reduce unnecessary costs at and for the laboratory.

We do think that the ER budget for fiscal year 1996 is fair, despite the increase. And we are, particularly within that program, committed to utilizing the unique scientific facilities that only DOE contributes to the Nation's basic research effort.

And I think it is important to note here that the Department of Energy and the Office of Energy Research makes a critical contribution to the Nation's overall investment in basic science.

Within the Office of Energy Research, we are committed to providing the fundamental knowledge and human skills that are necessary for the DOE to pursue its energy and environmental missions.

And through our national labs, we provide a critical physical and human infrastructure for the Nation's investment in basic research.

We work with our colleagues—this reflects on some of the earlier comments I made. We work with our colleagues in energy technology programs and in industry to understand and identify critical worldwide problems for the energy and environmental missions.

We work with our colleagues in the universities and laboratories to identify where the frontier knowledge and the instruments are that could be brought to bear to make a difference to these problems.

And we work with our colleagues in other agencies, in order to leverage their work for the energy and environmental missions and to have them leverage ours for the broader science and technology missions that are engaged in by the Government.

And I believe we make a difference. We support unique areas of materials and chemical sciences that relate to problems and technologies associated with the energy and environmental missions.

And to some extent, that is what I am trying to capture in that far right board over there, is the kinds of investments we make in which pieces of science, what technologies they relate to and who our partners are.

We use frontier biology to understand the health and environmental effects of energy production and end use. And we do support 90 percent of the Nation's investment in high energy and nuclear physics, which bring great recognition to the United States and its investments in basic research. And we use external peer review to guarantee the highest quality of our science.

NONIMAGING OPTICAL REFLECTOR

So what I would like to do now, changing the subject slightly, is tell you: What have we done for you lately? And I want to tell you that I was very big on show and tell in grade school. And so if you will, indulge me.

What I have here is——

Senator BURNS. A light, a taillight.

Dr. KREBS [continuing]. A taillight from a 1992 Thunderbird. Actually, I got this off of my deputy's car because he drives the Thunderbird, not me. [Laughter.]

And what this taillight has is a combination—instead of a standard light bulb, 15-watt light bulb or so, it has a low light emitting diode, sort of, a solid-state, semiconducting-type device.

And, can I get you to take this up there so they can look at this now?

And there is something called a reflector in here. It is called a nonimaging optical reflector. It was developed first by some high energy physicists because they had to work with very small amounts of light in their detectors. This guy wanted to build a better detector for high energy physics.

When the folks in the Basic Energy Sciences Program looked at this, they said, "Hey, we have got a very diffused source of light called the Sun. We are supposed to be looking at better reflectors for solar furnaces and solar power producers."

And, in fact, we have just installed one based on this principle out at the National Renewable Energy Laboratory, one of their facilities.

But then the automobile industry came in and said, "Well, if we can collect diffused light, what happens if we only want to use a little light and throw it in a wide area?"

And that is what turned out to have this impact on the cars. It saves about 20 percent of the energy, electrical energy used in cars.

And the most recent indication is that this same concept has been used to back light laptop computer flat-panel displays and save energy in your computer's battery.

That is one example of something that I do not believe would have happened any place else other than the Department of Energy because we have this combination of high energy physicists and energy science being pursued.

HUMAN GENOME PROGRAM

Another example is in the Human Genome Program. The capabilities we have invested in our laboratories have been intimately involved in some of the pursuits of disease genes, particularly the breast cancer gene and DNA repair gene that causes colon cancer.

FUSION ENERGY

The last year has seen a tremendous campaign of new fusion energy power records at the Princeton facility. And we are very proud of that.

There is exquisite instrumentation that allows both the control and the observation of what is going on in these high temperature, high density plasmas. And then, of course, we discovered the quark, or we confirmed, in fact, the discovery of the quark at Fermilab.

Although I cannot tell you what that may lead to, what I do know is 50 or 60 years ago we did not know or had not discovered neutrons.

And this year, Clifford Sholl, formerly of Oak Ridge and MIT and supported his whole career for neutron scattering research by the

Department of Energy, won the 1994 Nobel Prize. And neutron scattering is a terrific tool for characterizing material.

I would like to end there. But before I complete my comments, let me just share a recent statement from Dr. Glen Seaborg, who I had the good fortune to know when I was at the laboratory and who is not only a fine scientist but a real citizen, I think, of this country.

And he said,

"I sometimes liken the role of the scientist to that of a mountain climber, who, with great care and exertion achieves some prominence from which he is able to perceive immediately and clearly new vistas which are hidden from the sight of those down in the valley below even though many of those in the valley have better eyesight."

In the Office of Energy Research, we try to find the hills that those scientists can find. We come to Capitol Hill because you may have better eyesight.

I am ready for questions.

[The statement follows:]

PREPARED STATEMENT OF MARTHA A. KREBS

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to present the Fiscal Year (FY) 1996 budget request for the programs supported by the Office of Energy Research. These programs are: Basic Energy Sciences, Fusion Energy, Biological and Environmental Research, High Energy Physics, Nuclear Physics, Laboratory Technology Transfer, Energy Research Analyses, Multiprogram Energy Laboratories Facilities Support, and supporting program direction. Before going into the specifics of our request for these programs, I want to provide a broader national context for the work that we do.

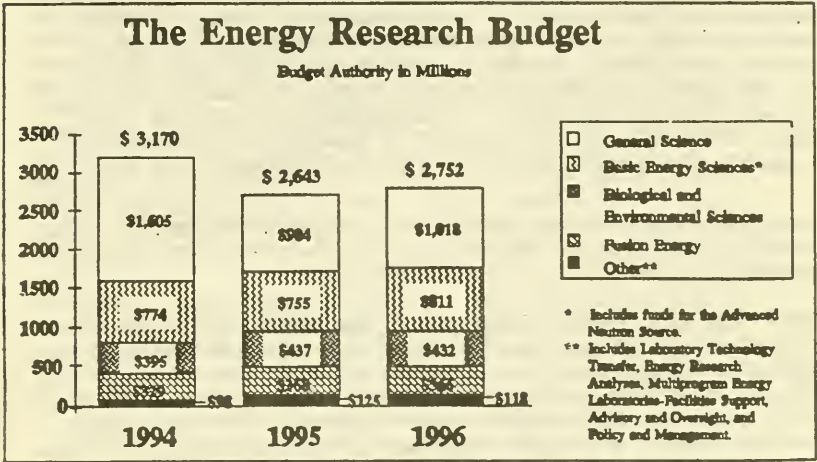
Our Perspective

Over the past two decades, there has been a steady change in how technological developments are introduced into the national economy. Not very long ago, they evolved with little relationship to their environmental implications. It was enough that they worked. Today we take a more integrated approach. Technology development is linked to the environmental considerations that are altering the very way in which we do business as a Nation. From auto emissions and greenhouse gases to clean water and radioactive waste cleanup, we, as a Nation, have become increasingly sensitive to the economic and environmental implications of what we do technologically. By stressing the interrelationship of the economy, the environment, and technology, we ensure a more rapid industrial development cycle because what we develop is then more likely to be environmentally benign and widely accepted. One of the main missions of the Office of Energy Research is to conduct programs which provide the science that triggers and drives such appropriate technological development. We carry out this mission through programs focused on basic research that provide the foundation for technical advancement and through partnerships with universities, national laboratories, and industries across the Nation. And we emphasize research that: maintains our world leadership in science, math, and engineering; supports the Department's energy and environmental missions; and promotes technology transfer through partnerships with industry.

The programs of the Office of Energy Research span five focus areas, namely:

- Knowledge and Skills for the Department's Energy and Environmental Business Lines which also have much broader implications for the Nation's technology competitiveness. The Office of Energy Research programs in Basic Energy Sciences, Biological and Environmental Research, and Fusion Energy are in this area.
- Fundamental Research in Energy and Matter that advances knowledge for future technologies and helps maintain U.S. world leadership in science. The High Energy and Nuclear Physics programs are clearly in this category.
- Construction and Operation of Major Experiments and User Facilities to produce advanced research tools needed for forefront research. They include accelerators for high energy and nuclear physics research, neutron sources, magnetic fusion facilities, and synchrotron light sources.
- Technology Research in partnership with industry that addresses industry-driven economic opportunities while supporting the Department's missions. Our Laboratory Technology Transfer program, Cooperative Research and Development Agreements (CRADAs), and other partnership arrangements with industry and with the Department's technology programs make up this category.
- Education activities that provide high-quality, timely, scientific and technical information services and education assistance to a wide range of customers to enable the Department to contribute to the welfare of the Nation. The Office of Energy Research conducts a number of science education-related programs which are inherent

in our research programs. These efforts include support for nationally competitive graduate and postdoctoral research fellowships, direct funding of universities, and the provision of scientific user facilities where professors and students conduct their experiments.



Implementing Our Programs

In large measure, the Office of Energy Research's programs are carried out at universities and national laboratories. The Office has a special role in ensuring the vitality and responsiveness of these institutions. Our interest and commitment to universities is tied to their responsibilities for the next generation of scientists and engineers. They bring the best and the brightest to bear on the Department's programs and make the creative enthusiasm of youth available to investigate and solve national problems.

The national laboratories, with their multidisciplinary scientific teams, carry out large-scale coordinated research for the Department in such areas as global climate change, energy conversion, advanced materials, human genome, high energy and nuclear physics, and others. They have made major contributions in the past -- among them the definition and early development of the entire field of nuclear medicine and almost an influence on large scale, high speed computing and interactive computing -- and are viewed as a special resource for the future. The basic science investment in unique facilities and scientific teams at the laboratories enables them to address the broad cross-disciplinary problems of interest to industry and the Nation.

Science Facilities Initiative

The Department of Energy operates many large, state-of-the-art basic research facilities used for specialized energy, environmental, medical, genome, physics and industrial research. Such facilities include high energy and nuclear physics accelerators, neutron and synchrotron light sources, supercomputer centers, and smaller facilities such as electron microscopy centers. I am particularly proud of this aspect of our program for it not only sets us apart from the other Federal agencies that support science, it ensures that our Nation will maintain its world leadership across a multitude of scientific disciplines. I am committed to supporting the best scientists in the world at our first-rate facilities, to managing these facilities in an efficient, cost-effective way consistent with all matters of environmental compliance, and to measure ourselves

continuously, as we have in the past, by peer review of our product and our performance.

About 15,000 industry, university and government-sponsored scientists conduct unique, cutting-edge experiments at the Department's basic research facilities each year. The light sources alone are used by about 4,000 researchers annually for basic research in such important areas as polymers, alloys, semiconductors, superconductors, magnetic materials, structural biology, and pharmaceuticals. In many of these research areas, U.S. industry relies heavily upon the Department's facilities to conduct experiments that would otherwise be too expensive, or even impossible, to carry out in the United States. The demand for operating time at our basic research facilities has increased dramatically and in most cases has exceeded availability by a factor of two to three.

Funding limitations have restricted operating time at these facilities and have prevented us from meeting the increased demand. As a result, most of the Department's research facilities are currently underutilized.

The FY 1996 budget recognizes the importance of these facilities and the need to reverse these trends by supporting a \$100 million Science Facilities Initiative (\$60 million in Basic Energy Sciences, \$25 million in Nuclear Physics, and \$15 million in High Energy Physics). Approximately 20 percent of Initiative funds will be provided directly to user groups through competitively awarded grants. This Initiative, affecting 23 user facilities nationwide, will increase the number of users at many of our facilities by about 30 percent and will make good, in part, on the President's commitment, articulated in Science in the National Interest, to make investment in science and its infrastructure a top priority.

Renewing High Energy and Nuclear Physics

As the Subcommittee knows, the Department of Energy is the primary funder of high energy and nuclear physics in the country. Part of this is historical, related to the origins of these programs in the Atomic Energy Commission, but most of it is related today to the fact that the Department is the world's acknowledged leader in this forefront area of physics, and in the design, construction, and operation of the kinds of facilities that are needed to pursue this research. In particular, scientists supported by our High Energy Physics program in the past year have obtained experimental evidence for the existence of the "top quark," providing verification of the Standard Model, a greatly simplified picture of the physical world at its most fundamental level.

Budget Authority in Millions

General Science & Research	FY 1994	FY 1995	FY 1996 Request
High Energy Physics			
- Operating Expenses	463.8	474.7	494.8
- Capital Equipment	60.1	57.7	63.2
- Construction	86.3	109.7	127.6
Total High Energy Physics	610.2	642.1	685.6
Nuclear Physics	345.3	331.5	321.1
Superconducting Super Collider	640.0	0.0	0.0
General Science Program Direction	9.0	10.4	10.9

Continuing U.S. leadership of this sort over the next several decades will require continued investment in national and international research. On the domestic front, the Department is providing a funding increase that reflects the recommendation of the High Energy Physics Advisory Panel. This increase, planned for a three-year period beginning in FY 1996, will permit an approximately 30 percent increase in operating time at high energy physics facilities compared to FY 1995 levels. It is clear that research user facilities are currently underutilized, primarily because of budget stringencies and the necessity to balance funding between facility operations and research. It will also allow the Department to complete both the Fermi National Accelerator Laboratory (Fermilab) Main Injector and the Stanford Linear Accelerator Center (SLAC) B-factory upgrades, thus maintaining these laboratories as world-class facilities. On the international front, the Department is considering a U.S. commitment to cooperation with European physicists on the proposed Large Hadron Collider at the CERN Laboratory in Switzerland. Cooperation on the Large Hadron Collider will ensure that U.S. researchers have access to new scientific regimes after the turn of the century.

In the nuclear physics program, construction will continue at Brookhaven National Laboratory on the Relativistic Heavy Ion Collider, while the Continuous Electron Beam Accelerator Facility (CEBAF) in Newport News, Virginia, will begin full-scale operation in FY 1996. Designed to probe the quark structure of matter, CEBAF is already generating intense interest from the scientific community. Users from a community of one thousand scientists in 200 research institutions have already scheduled the first three years of experimental time on the machine.

Fundamental Knowledge and Skills for Energy and the Environment

Basic Energy Sciences and the Environment

The Basic Energy Sciences program and the Environmental component of our Biological and Environmental Research Program have also contributed significantly to the Department's mission over the past year by finding new and improved ways to conserve resources, control pollution, reduce waste in manufacturing processes, understand and predict the impacts of global climate change, and develop innovative approaches to waste cleanup.

The following are just a few of the noteworthy accomplishments which demonstrate the impact of these programs; they are representative of the type of research that will benefit from the Science Facilities Initiative.

- Scientists at the Department's Ames Laboratory have developed a lead-free solder having substantial environmental benefits. The discovery of the new solder alloy, based on tin, silver, and copper, eliminates the hazard of exposure to lead-containing vapor in industrial soldering. Johnson Manufacturing, Inc., of Princeton, Iowa, an ingot and wire manufacturer for the electronics industry, recently licensed the Ames lead-free solder technology. Performance tests indicate the new material forms strong joints suitable for major electronic circuit manufacturing operations such as those used by the automobile industry.
- Years of research into the theory of alloys, supported by the Department, paid off again in 1994, when scientists at the California Institute of Technology discovered a new set of metallic glasses that could be produced in "ingot" sizes. Metals with glass-like properties have always been known to have corrosion resistance superior to other, more conventional, metallic structures, with reduced friction and improved wear, but could never be produced in bulk. This development offers a more economical way to produce complex metallic

shapes with little waste using manufacturing practices such as near-net-shape forming and injection molding. Commercial applications range from corrosion-resistant car parts to high-precision components for airplanes.

- It will soon be easier to rid groundwater and mixed waste streams of toxic metals such as cadmium, mercury, and lead by passing the contaminated liquids through a new resin discovered at Argonne National Laboratory. The resin exchanges harmless substances for the heavy metals. Dubbed "Diphonix," the resin is a versatile polymer with a broad range of capabilities that also exhibits a marked affinity for radioactive metal ions. A company established in 1990, ElChroM Industries, Inc., is commercializing the resin for a variety of cleanup applications.
- Advances in "massively parallel" supercomputing have enabled scientists to better simulate climate change. Researchers at the Los Alamos National Laboratory, the National Center for Atmospheric Research, and the Naval Postgraduate School are completing development of the first integrated model that couples ocean circulation to state-of-the-science atmospheric models, providing real confidence for the first time that accurate climate change predictions are possible. In addition, we have deployed the first Atmospheric Radiation Measurement (ARM) site, the first of three such sites planned for deployment by 1997 that will make possible the systematic compilation of a reliable global climate data base.

Improving Our Health

Progress in biotechnology translates into more products and processes of potential economic and social benefit to the Nation than probably any other scientific discipline. The Department sponsors an active program of such research that traces its origins back to the mid-1940's when legislation directed the Atomic Energy Commission to explore the utilization of radioactive materials for medical and health purposes.

Beginning in the 1970's, legislation empowered the Department and its predecessor agencies to support environmental, physical, and safety research related to the development of energy resources and their utilization. As a result of implementing these legislative mandates, the Department, through the Office of Energy Research, has established and maintained a world leadership role in these areas of science. As partial evidence, I offer the Subcommittee the following examples:

- Our scientists at Pacific Northwest Laboratory have successfully mimicked the bond between living bone and medical implant materials, such as titanium and metal alloys, and as a result, developed coatings that have increased the interlocking between the implant surface and growing bone. Current implant materials may fail after only a few years of use; the new coatings are expected to last significantly longer. If so, they would not only reduce the cost of producing medical implants, a \$100 million dollar per year industry, they would also improve quality of health care. An estimated 500,000 patients receive hip implants and knee replacements each year in the United States.
- Scientists at Lawrence Berkeley Laboratory have demonstrated the importance of a cell's microenvironment on the development of normal breast tissue and breast cancer. This research has led to the development of a rapid cell culture assay to distinguish normal human breast cells from their malignant counterparts.
- Human Genome program resources and technologies are speeding the discovery, characterization, and isolation of disease genes. For example,

Department of Energy-funded research at Brookhaven National Laboratory, the Eleanor Roosevelt Institute for Cancer Research, and the California Institute of Technology had direct roles in the recent isolation of a DNA repair gene that may be responsible for up to fifteen percent of all colon cancers and another gene, BRCA-1, that contributes to susceptibility to breast cancer in some women.

- Microbial genome research utilizes technologies, developed in the human genome program, to characterize and engineer the genome of microorganisms to treat and minimize process wastes from key industries. The structural biology program, in conjunction with the genome studies and the computational biology program, contributes the resources and technology to reengineer important biomolecules for use in waste remediation, environmental cleanup, drug development, and industrial catalysis.
- Scientists performing medical applications research continue to advance the development of new radiopharmaceuticals through programs that design, synthesize, and label biologically active molecules. These molecules serve as medical probes for imaging by such diagnostic systems as Positron Emission

Tomography (PET) and Single Photon Emission Computerized Tomography (SPECT), thereby helping to diagnose disorders and monitor effectiveness of a wide variety of treatment protocols. For example, research sponsored at the University of Michigan has yielded a radiopharmaceutical, approved by the U.S. Food and Drug Administration, for diagnosis and treatment of neuroblastoma, a deadly type of cancer in children. Technology which has evolved from the Department's nuclear medicine program is now being used in more than 100 million diagnostic and therapeutic procedures performed annually.

Harnessing Information Technology

Research at our laboratories on advanced computing and advanced mathematical techniques led to the development of today's supercomputers and spawned a major new industry which has penetrated most major U.S. industrial sectors. High performance computing and communications are important parts of the Administration's effort to promote the development and use of the national information infrastructure. Significant achievements in the past two years include the development of innovative software that reduces automobile crash test analyses from one month to one day and the "parallel virtual machine" concept that links hundreds of workstations together in an efficient problem-solving environment that has been adopted by industry to attack otherwise intractable computational problems. In addition, the award to U.S. Sprint of a \$25 million contract from the Department's Lawrence Livermore National Laboratory helped demonstrate a new communications technology that enables a dramatic increase in the ability of a network to transfer the massive amounts of data that characterize many of today's multimedia computer applications. It is reported that Sprint is prepared to invest \$500 million in this technology, speeding up by two years the industry timetable for reducing it to commercial practice.

The FY 1996 program promotes the integration of these and other successes with communication protocols, languages, and other tools to produce a totally new research environment, one that allows geographically distributed investigators to interact with remote facilities as a seamless part of their working world, and one that allows "virtual laboratories" for more effective operation as recommended by the Galvin Commission report findings. These developments will eventually transform science education by linking every classroom around the country to libraries, databases, museums, and even

to our national laboratories so that students and teachers can participate in real time on real experiments with working researchers.

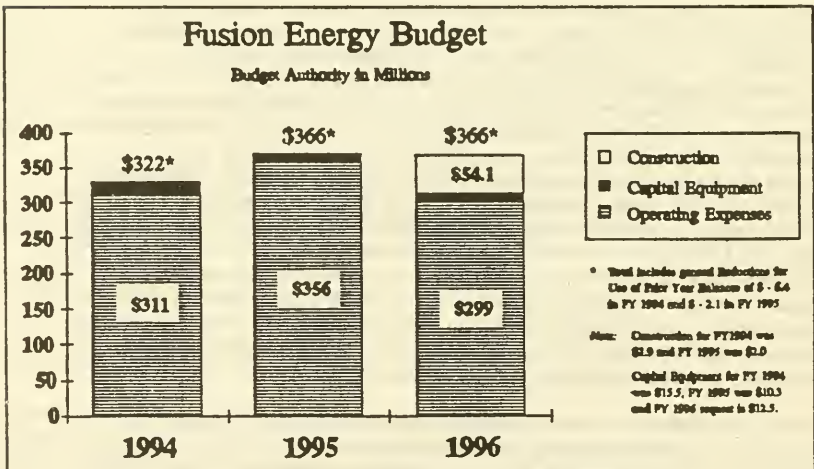
Future Neutron Sources

Because of the high cost of the Advanced Neutron Source (ANS) and overall budget constraints, no FY 1996 funds have been requested for the ANS. Funds remaining in FY 1995 for ANS will be identified in a proposed reprogramming request to the Congress. These funds will be used instead to begin research, development and design for a spallation neutron source. Such a facility would meet most of the Nation's needs for neutron scattering research for less cost than the ANS. The Basic Energy Sciences budget also contains \$8 million for the conceptual design of the spallation neutron source. This research and development effort will make use of the best capabilities in the Department's laboratories, including the Accelerator Production of Tritium (APT) project sponsored by Defense Programs at Los Alamos National Laboratory.

Making Fusion Energy Possible

The fusion program has made steady progress toward the goal of developing fusion as a source of electricity. The results from the program are at the cutting edge of both science and technology. The scientific discipline of plasma physics, for example, was established by the fusion program because it was needed for fusion development. Plasma physics is now used in a variety of other important areas such as understanding the near-earth space environment and its effects on communications.

Progress in the past two years, in particular the achievement of record energy production of 10.7 megawatts of fusion power in the Tokamak Fusion Test Reactor, has significantly enhanced the prospects for demonstrating the scientific feasibility of fusion power. Extending this achievement to a commercial reality will require additional facilities. The FY 1996 budget provides for design and engineering of the Tokamak Physics Experiment (TPX), essential to the development of more efficient and economically attractive commercial designs, and for the International



Thermonuclear Experimental Reactor (ITER). Design of ITER and consideration of its construction are being done in an international partnership with Japan, the European Community, and the Russian Federation. ITER would fully demonstrate the scientific and technological feasibility of fusion. The President's Committee of Advisors on

Science and Technology (PCAST) is conducting a review of the Department's fusion program, which should be completed this summer. Start of TPX construction will await these PCAST recommendations.

Partnerships in Progress

University-Industry-Laboratory Partnerships

Our Laboratory Technology Transfer program has supported over 200 Cooperative Research and Development Agreements (CRADAs) with industry in the past two years and we have over 800 documented collaborations with industry across all sectors of the economy. Notable examples are:

- the Complex Carbohydrates Center at the University of Georgia, initiated with Energy Research funding, where complex chemical structures have been analyzed for over 135 corporations. Several new firms are being established based on the knowledge and techniques emerging from this Center;
- the AMTEX™ Partnership with the U.S. textile industry that is strengthening America's global competitiveness through technology development and deployment. Based on progress to date in this program, there is a reasonable prospect for recapturing up to 50 percent of business lost to imports over past decades, resulting in the creation of 250,000 jobs in the next 10 years;
- the Partnership for New Generation Vehicles (PNGV), led by the Department of Commerce, which includes CRADAs sponsored by the Offices of Energy Research, Energy Efficiency and Renewable Energy, and Defense Programs. For example, this program is developing new computer models of combustion that will allow confident predictions of emissions from advanced automotive designs; and
- a cooperative program involving the Offices of Energy Research, Defense Programs, and Fossil Energy in support of the Administration's Advanced Computation Technology Initiative, utilizing CRADAs with industry that will increase domestic oil and gas production and make more efficient use of these scarce resources.

Small Business Innovation Research

The Office of Energy Research contributes to the Nation's industrial competitiveness through its management of the Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) programs for the Department of Energy. These programs are mandated by Public Law 102-564, which requires 11 Federal agencies, including the Department of Energy, to set aside a percentage of their extramural research and development budgets (2.0 percent in FY 1996 for SBIR and 0.1 percent for STTR) to fund innovative research and development projects from small businesses. Now in its thirteenth year, the SBIR program fosters the conversion of that research and development into valuable new technology of economic benefit to the Nation.

Under Energy Research's stewardship, the Department's SBIR program continues to be one of the most successful SBIR programs in the Federal government. The Department's unique Commercialization Assistance Program has helped SBIR companies commercialize the results of their research. Projects completed between 1986 and 1990 have already generated over \$260 million for the commercialization of their products and processes, substantially more than the \$150 million in funding provided by the SBIR program for these projects.

These remarks conclude my overview of the Office of Energy Research's programs, our accomplishments, our hopes for the future, and our belief that these programs are among the very best in the world because they have been generously and unstintingly supported and defended by this Subcommittee and its predecessors over almost half a century.

I would now like to discuss the FY 1996 budget request for our programs, which is included under the two appropriations shown in Appendix II-A. The total FY 1996 budget request is about \$2.8 billion. I will first discuss those programs which are in the Energy Supply Research and Development appropriation, followed by those in the General Science and Research appropriation.

BASIC ENERGY SCIENCES
(FY 95 - \$725.1M -- FY96 - \$811.4M)

Materials research is crucial to advanced automotive technologies; the safe and reliable transport, containment and storage of hazardous substances; and the minimization of wastes in the synthesis and processing of commercial materials.

The Basic Energy Sciences (BES) program provides science and engineering research that helps enable the Department of Energy's (DOE's) technology development programs succeed in their missions. By expanding the Nation's scientific and technical knowledge base and facilitating its transfer to DOE's energy technology programs and U.S. industry, the BES program invests in our country's immediate and long-term prosperity. The BES budget request includes \$60 million of the \$100 million Science Facilities Initiative. The BES program annually funds over 1,400 research projects across a broad spectrum of scientific disciplines at approximately 200 U.S. universities, DOE laboratories, and industrial institutions. These projects support about 4,000 professors, postdoctoral fellows, and graduate students at universities, and nearly 2,000 full-time staff scientists at the laboratories. About a quarter of the research funds goes directly to universities.

In addition to supporting research, the BES program also funds unique national user facilities that are used by the private sector, universities, DOE, and other government agencies. These facilities primarily include synchrotron light sources and neutron sources that are made available to all qualified scientists and engineers. The light sources and neutron sources are necessary to probe atomic and molecular structures and properties required to advance the fields of materials, medical, chemical, and biological science. Over 4,000 users, including hundreds of industrial scientists from about 100 U.S. companies, were accommodated at the seven major BES scientific user facilities in 1994. These facilities are: the National Synchrotron Light Source at Brookhaven National Laboratory; the Advanced Light Source at Lawrence Berkeley Laboratory; the Stanford Synchrotron Radiation Laboratory at the Stanford Linear Accelerator Center; the Combustion Research Facility at Sandia National Laboratories-Livermore; the High Flux Isotope Reactor at Oak Ridge National Laboratory; the High Flux Beam Reactor at Brookhaven; and the Intense Pulsed Neutron Source at Argonne National Laboratory. The 6-7 GeV Synchrotron Radiation Source at Argonne, a new facility that will provide a diagnostic beam of radiation unsurpassed in intensity by any available source today, is proceeding on schedule for completion in 1996. Many areas of modern science require these major facilities to develop information not otherwise attainable and, in general, only the Federal government can provide the necessary funds. As such, these facilities are one of the most effective means of transferring scientific information and technology from fundamental research to application.

All BES research is of high scientific quality and also highly relevant to current DOE missions and the Department's future success. Research in BES originates from the scientific community through proposals from universities, government laboratories, and industry. BES provides broad guidance on strategic directions obtained through working relationships with other DOE programs, research workshops, and policy directives, to which the scientific community responds with their best ideas. Researchers are encouraged to pursue solutions to the most challenging and interesting problems which are appropriate for the Department, and partnerships are formed with other DOE programs to foster technology transfer. The BES program supports the Department's Energy Resources missions in the areas of energy efficiency, renewable energy resources, improved utilization of fossil fuels, reduced environmental impacts of energy use, and future fusion energy sources. In support of the Environmental Quality missions of the Department, the BES program provides fundamental understanding to help eliminate the risks posed by past activities and prevent or minimize the environmental impact of departmental actions. These approaches to basic research funding have led to 120 Cooperative Research and Development Agreements (CRADAs) which extend the basic research to applications and development. In addition, partnerships with the industrial sector involve over 700 other direct collaborations between BES researchers and industrial researchers.

FY 1996 BASIC ENERGY SCIENCES BUDGET REQUEST

Budget Authority in Millions

Energy Supply R&D Basic Energy Sciences	FY 1994	FY 1995	FY 1996 Request
- Operating Expenses	598.4	624.5	730.0
- Capital Equipment	43.5	39.0	57.0
- Construction	115.9	70.4	24.4
Subtotal Basic Energy Sciences	757.8	733.9	811.4
- Less General Reduction	- 14.2	- 8.8	-
Total Basic Energy Sciences	\$ 743.6	\$ 725.1	\$ 811.4

A more detailed budget table for Basic Energy Sciences is provided in Appendix II-B.

The FY 1996 budget request for Basic Energy Sciences is \$811.4 million. The request includes \$730.0 million for Operating Expenses, \$57.0 million for Capital Equipment, and \$24.4 million for Construction. The Operating Expenses request is distributed among seven subprograms, Materials Sciences, Chemical Sciences, Applied Mathematical Sciences, Engineering and Geosciences, Advanced Energy Projects, Energy Biosciences, and Program Direction.

The Materials Sciences subprogram supports materials research programs and national user facilities that enable improvements in existing technologies or the creation of new ones. This subprogram, for which \$348.3 million is requested in FY 1996, creates new knowledge of materials structures and properties that is necessary for attacking scientific and technological barriers to commercialization and identifying previously unknown problems that must be addressed for emerging technologies and markets.

Materials sciences is an enabling technology. The performance parameters, economics, environmental acceptability and safety of all energy generation, conversion, transmission, and conservation technologies are limited by the performance of materials. Materials research is also crucial to advanced automotive technologies; the safe and reliable transport, containment and storage of hazardous substances; and the minimization of wastes in the synthesis and

processing of commercial materials. Research in the Materials Sciences subprogram is concerned with optimizing the behavior and performance of materials for these technologies. This research seeks to understand the synergistic relationship among the synthesis, processing, structure, properties, and behavior of a diverse range of materials. The FY 1996 budget request would support strategic basic research in such topics as aqueous and galvanic corrosion, high temperature gaseous corrosion, neutron induced irradiation damage, welding and joining, high rate and superplastic metal forming, processing for high surface hardness, metallic glasses, solar photovoltaics, high temperature structural ceramics and ceramic matrix composites, solid ceramic electrolytes for batteries and fuel cells, and non-destructive evaluation and early warning of impending materials failure. The subprogram is also a major supporter of basic research in high temperature superconductivity, magnetic materials, high temperature alloys and the synthesis, processing, and performance of materials in systems to optimize safety and minimize environmental hazards, wastes, and risks. The Materials Sciences request also provides for much of the funds for the operation of many of the Basic Energy Sciences national user facilities identified earlier.

The Chemical Sciences subprogram, with a FY 1996 Operating Expenses request of \$181.6 million, investigates the atomic and molecular properties of matter and the interactions of its components. Its objective is to expand our knowledge in the various areas of chemistry and aligned scientific disciplines with the goal of contributing to new or improved processes for developing and using domestic energy resources. Chemical Sciences research ultimately affects such areas as production of fuels and chemicals from coal and other carbonaceous resources including biomass; environmental restoration and waste management; and the efficient and safe utilization of energy sources. For example, this subprogram will support research using specific catalysts to derive an array of valuable chemicals and transportation fuels from natural gas. Similarly, it will yield new fundamental information which will help improve the conversion of coal to diverse valuable products ranging from high-octane fuel to basic chemicals.

The success of the Department's long-term program in environmental restoration will depend, in part, upon obtaining a fundamental molecular level understanding of interactions between dissolved materials in aqueous systems and soil-type substrate surfaces. Chemical Sciences supports a multi-disciplinary approach to studies of the dynamics of chemical reactions. These studies will provide insights into the chemistry involved in combustion, allowing development of more efficient and cleaner combustion systems while elucidating fundamentals of chemical reactivity. In FY 1996, the research program will emphasize areas relevant to combustion, catalysis, the environment, waste management, advanced batteries for nonautomotive applications, materials precursors, and atomic and plasma sciences. The FY 1996 budget request also includes support for some of the major scientific user facilities such as the Combustion Research Facility and the High Flux Isotope Reactor.

The Applied Mathematical Sciences subprogram supports a spectrum of activities ranging from fundamental, long-range mathematical and computational research that underpins all of the Department's programs to the management and operation of a leading edge information infrastructure. This subprogram, for which \$108.7 million of Operating Expenses is requested in FY 1996, contributes to the multi-agency High Performance Computing and Communications (HPCC) program, and advances all aspects of scientific computation. The driving requirement for the HPCC program is to advance the fundamental concepts and techniques which underpin all energy sciences and development. On focus is to enable the solution of "grand challenge" problems in computational science that have major scientific and economic impact, such as the design of advanced materials or the understanding of combustion dynamics and catalysis. The HPCC program will substantially expand and accelerate development of a new generation of computing and communications technologies, facilities, applications, and trained personnel. In fact, an important goal of the HPCC initiative has been to encourage young men and women to pursue careers in science and engineering and to participate in the computational sciences in the U.S. The Applied Mathematical Sciences subprogram has made significant contributions to achieving that goal by providing scholarships, fellowships, and opportunities for postgraduate students to

participate in its research activities, and by supporting some very innovative projects to attract minorities and women into the sciences, to teach and assist teachers in math and science education, and to develop new tools and curricula for computational science education.

The FY 1996 budget request for Applied Mathematical Sciences will also provide for a few selected research and development activities required for a national information infrastructure (NII). A feasibility study has validated the merit of a national information infrastructure application in energy demand and supply management. The FY 1996 request will provide for funding application prototypes in this area and those technologies that are critical to realizing the benefits of energy demand management and other NII applications. The FY 1996 request will also provide for the upgrade of the advanced prototype parallel computing systems at one of the High Performance Computing Research Centers. In FY 1996, this subprogram will also begin an important project to transition massively parallel computing systems from the research environment into more production computing-oriented environments to help promote their utility in the commercial sector. The request also provides for completion of the first set of upgrades for the Energy Sciences Network, the first multi-protocol, Internet-compatible, data communications network which provides the core connectivity and functionality to the energy research community. In addition, this subprogram will conduct fundamental computational and computer sciences research and development as part of the Department's participation in the Advanced Computational Technology Initiative.

The Engineering and Geosciences subprogram has a FY 1996 Operating Expenses request of \$39.9 million. Research in engineering focuses on enriching fundamental understanding of systems and processes that underlie current engineering practices in energy technologies and provides the technical and conceptual base for solving future problems. The FY 1996 request provides for continuing fundamental engineering research, with emphasis on topics important for energy production and use, as well as for meeting the Department's long-term objectives for environmentally friendly industrial design and restoration of the environment. Such topics include bioprocessing of fuels and energy-related wastes; design of techniques to increase the service life of complex energy-related structures; flow of oil, gas, and water through porous materials similar to soil and rocks; and two phase flow in energy systems, for instance, mixtures of oil and gas in pipelines. Work will also continue on intelligent machines and intelligent controls contributing to increased industrial productivity and improved handling of hazardous wastes.

Geosciences research emphasizes behavior and properties in the outer few kilometers of the earth's crust. Geologic fluids such as oil, gas, geothermal brines, magma-hydrothermal solutions, and water move within and interact with these few kilometers of the crust. In Geosciences research, a number of techniques, such as underground imaging, computer modeling, and experimental simulation, are used to develop theories to explain the origin and development of geologic structures and their interactions. Theories are then tested directly by drilling, sampling, down-hole experiments, and additional surface-based observations. The FY 1996 budget provides for sustaining research in underground imaging, for scientific drilling, and for experimental studies of the interactions of minerals and fluids with the crust, all areas of critical importance to energy and environmental technologies. It also provides for geophysical research and modeling which support the Advanced Computational Technology Initiative.

The Advanced Energy Projects subprogram, with a FY 1996 Operating Expenses request of \$12.0 million, explores the feasibility of high-risk, energy-related ideas that could lead to significant opportunities for the Nation's energy future. These novel ideas are often catalyzed by a significant advance in basic research. They often involve more than one scientific discipline and are considered to be premature for consideration by the Department's technology development programs. Research support is provided for about three years to test each idea. After that, if the concept has sufficient promise, it is expected to be in a position to attract follow-on funding from other sources, which can include private funds. The FY 1996 request will maintain the subprogram's present level of research effort in the Department's mission areas by supporting strategic research such as exploring novel processes

for manufacturing high temperature superconducting magnets and developing new, high-precision techniques for mapping oil and gas fields.

The principal objective of the Energy Biosciences subprogram is to provide the fundamental information and conceptual understanding necessary to develop tomorrow's energy-related biotechnologies. The program emphasizes the microbiological and botanical sciences in support of the Department's efforts for the production of renewable fuels and chemicals, the microbial conversion of biological resources into useful and novel products, and the development of methods for the elimination or reduction of environmental pollutants. The research focuses on the basic mechanisms affecting plant productivity, conversion of biomass and other organic materials into fuels and chemicals by microbial systems, and the ability of biological systems to replace energy-intensive processes in an efficient and environmentally-friendly way. The potential of these biotechnologies to have a dramatic impact on future energy use and production, as well as commercial activities, is high. The FY 1996 Operating Expenses request of \$29.5 million will provide for the continuance of the subprogram's support of research efforts to exploit, to the fullest extent possible, the enormous potential of modern biotechnologies.

The Program Direction request for Basic Energy Sciences for FY 1996 is \$10.0 million. This request provides funds for the salaries, benefits, travel, and other expenses related to 85 full-time equivalents required to administer this program.

The Basic Energy Sciences Capital Equipment request for FY 1996 is \$57.0 million. These funds will permit Basic Energy Sciences-supported researchers to have the necessary equipment needed to initiate and continue advanced research, much of which involves experiments at extremes of temperature and pressure. Reliable, precise measurements under these conditions challenge the current state-of-the-art. Replacement and new equipment funded under this request, which is essential to the continued success of the program, includes such items as electron microscopes, neutron spectrometers, molecular beam equipment, and computers for equipment control and data analysis.

Budget Authority in Millions

Energy Supply R&D - Basic Energy Sciences (Construction Summary)	TEC	FY 1995	FY 1996 Request
- 6-7 GeV Synchrotron Radiation Source (ANL) (89-R-402)	467.2	58.4	3.2
- Combustion Research Facility-II (87-R-405)	26.8	0.0	2.0
- Accelerator and Reactor Improvements Projects	N/A	7.5	12.9
- General Plant Projects (GPE-400)	N/A	4.5	6.3
Total Basic Energy Sciences Construction		\$ 70.4	\$ 24.4

The FY 1996 Construction request of \$24.4 million includes \$3.2 million to complete construction of the 6-7 GeV Synchrotron Radiation Source at Argonne National Laboratory (also referred to as the Advanced Photon Source) and \$2.0 million for the Combustion Research Facility, Phase II, at Sandia-Livermore. It also includes \$12.9 million for Accelerator and Reactor Improvements Projects and \$6.3 million for General Plant Projects. Each of these latter two categories is comprised of smaller projects which are necessary to maintain plant and facilities at several DOE laboratories. The projects include a wide spectrum of improvements necessary to maintain property and protect personnel and to modify existing scientific facilities to allow the most cost-effective utilization of their technical capabilities.

ADVANCED NEUTRON SOURCE

As indicated earlier, because of increasing constraints on the budget and the high cost of the Advanced Neutron Source (ANS), no FY 1996 funds will be requested for the ANS. To accommodate the needs of the Nation for neutron scattering, the Administration will propose to reprogram funds remaining after ANS termination in FY 1995 to support the initiation of research, development, and conceptual design for a spallation neutron source. Part of this effort will include an environmental review with Oak Ridge National Laboratory as the preferred site, but with alternative sites also being considered. The spallation neutron source will meet most of the needs for neutron scattering research for less cost than the ANS. The Basic Energy Sciences budget also contains \$8 million for the conceptual design of the spallation neutron source. This research and development effort will make use of the best capabilities in the Department's laboratories, including the Accelerator Production of Tritium (APT) project sponsored by Defense Programs at Los Alamos National Laboratory.

FUSION ENERGY

(FY 95 - \$366M -- FY96 - \$366M)

In 1994, the Princeton Plasma Physics Laboratory's Tokamak Fusion Test Reactor generated a world record 10 million watts of fusion power.

Fusion Energy offers the potential of an environmentally acceptable, economically competitive energy source with a virtually unlimited and widely available fuel supply. Growing world population, industrialization of the developing countries, environmental degradation, concerns about the security and availability of present fuels, and the need to replace existing electric generating facilities led to the need for the development of fusion energy technology to support sustainable development. Development of fusion energy technology, however, requires a long-term commitment to a capital-cost-intensive and high risk development program, making development of fusion by the private sector impossible. Therefore, it is an appropriate role for the Federal government to assume responsibility for the development of fusion energy until the private sector can make reasonably informed decisions on whether and how to commercialize fusion.

In magnetic fusion, strong magnetic fields are used to confine the fusion fuels, deuterium and tritium, which are heavy forms of hydrogen. The research program is focused on how best to arrange the magnetic fields and how to heat, fuel, and maintain the purity of the fuel. The majority of effort in magnetic fusion research is focused on a donut-shaped device known as a "tokamak," the name given to it by its Russian inventors. The tokamak is the approach that, after many years of research, is judged to have the best chance of being made into a power plant. Recent experiments in the Tokamak Fusion Test Reactor (TFTR) located at the Princeton Plasma Physics Laboratory (PPPL), have produced over 10.7 million watts of fusion power for a fraction of a second. This is a world record for the production of fusion power and it has provided the first opportunity to study the phenomena associated with energy release in the fusion device.

In inertial fusion, powerful beams of light or particles are used to heat and compress a pellet of fuel on a time scale so fast that the pellet does not have time to fly apart during the process. The research program is focused on understanding the interaction of these beams with the fuel pellet, and on the development of efficient, reliable particle accelerators. The science of the beam-pellet interaction is being carried out by the Office of Defense Programs. The development of components for energy applications is being carried out in the Office of

Fusion Energy and is limited to a single area, heavy ion accelerators, which is in its initial stage of development.

The Department has an established policy for the fusion program to conduct a goal-oriented fusion energy development program that would have a demonstration power plant operating by about 2025, and a commercial power plant operating by about 2040. In addition, the Energy Policy Act of 1992 calls for the program to conduct a technology demonstration of the practicability of commercial fusion energy by 2010. The Department's policy is based on a commitment to international collaboration throughout the program.

Because of the magnitude of the funding requirements for the development of fusion and because of the strategy to make major use of international collaboration, it is essential to establish a national commitment to the development of fusion energy in order to proceed effectively. To this end, and consistent with a Congressional request included in the Energy and Water Development Appropriation Conference Report for 1995, the President's Committee of Advisors on Science and Technology (PCAST) will evaluate the appropriate pace and direction of the fusion energy program. The fusion program described here will be modified, if appropriate, based on that review. This review is anticipated to be completed by the summer of 1995.

While the fusion program has made tremendous progress, there are still several major technical issues that must be addressed. The current magnetic fusion program strategy is focused on resolving these issues so that a tokamak magnetic fusion power plant can be operated to demonstrate that fusion is an economically competitive source of electricity. Four major activities have been identified as necessary to accomplish this objective.

The first activity involves the need to understand the physics of igniting and maintaining a "burning" plasma in a fusion power plant. In addition, a database for the design and operation of the components needed in a fusion power plant must be developed. Each of the world's major fusion programs has independently reached the conclusion that a large tokamak to address these issues should be the next step in fusion development. To this end, the European Community, Japan, the Russian Federation, and the U.S. have signed an agreement to do the engineering design and appropriate research and development for the International Thermonuclear Experimental Reactor (ITER). I will come back to ITER in a moment.

The second activity involves the development of advanced materials that will not become highly radioactive in a fusion power plant environment. The international community has agreed that the development of advanced materials requires the building of a materials testing facility that will produce an intense beam of neutrons at energies typical of those in a fusion power plant.

The third activity is the development and testing of the component needed to extract the energy from the fusion reactions in a manner that can be used to generate electricity. This component, commonly referred to as the "blanket," also contains material that is converted to tritium, for additional fusion fuel, when exposed to the neutrons from fusion reactions. This new fuel is then recycled into the power plant to keep it operating. Several different types of blankets would be tested in ITER after the completion of the work required for the first activity I described.

The fourth activity addresses the need to improve the power plant embodiment of fusion. The Tokamak Physics Experiment (TPX) will offer a unique opportunity to develop the scientific basis for a continuously operating, cost competitive demonstration power plant by making it smaller, more efficient, and, thus, less expensive to build and operate than would otherwise be possible. The TPX, which could be operating before ITER, would contribute to improved operation of ITER, when ITER is conducting the part of its mission that requires continuous operation for engineering testing. TPX would also provide the benefit of helping to maintain a strong domestic program so that the U.S. would be able to take advantage of the

information learned in the design and operation of ITER. In building the TPX, U.S. industry will gain valuable experience that will allow it to successfully compete with industry abroad for the large contracts that will be established for the construction of ITER.

Underpinning all of these activities is the supporting physics and enabling technologies. The former includes medium and small-scale tokamak experiments, diagnostics, theory and modeling, and a small amount of work on non-tokamak options. The list of enabling technologies being developed with DOE funding includes the development of magnets, vacuum systems, heating and fueling systems, heat-resistant materials, and other auxiliaries required to implement experiments.

The purpose of ITER is to demonstrate the scientific and technological feasibility of fusion. ITER would be the first fusion device ever to achieve the sustained burn of a deuterium-tritium plasma. It would provide a test bed for the technologies needed to build and operate a demonstration electrical power plant.

The ITER Engineering Design Activities (EDA) began in July 1992 and will be completed in July 1998. The scope of the EDA provides for the design of ITER and the associated research and development so that this information will be available to the four ITER Parties to use as part of an international collaborative program to construct ITER or to use in their own domestic programs.

The ITER Council, which provides overall direction and supervision of the EDA, acted in mid-1994 to appoint Dr. Robert Aymar of France as the new Director. The Council also appointed Dr. Robert Iotti from Rutherford-Appelton as Administrative Officer. These appointments, together with other key management changes, are aimed at improving the EDA efficiency and effectiveness.

The next major milestone for the EDA is preparation, by June 1995, of the Interim Design Report, which will provide detailed cost and schedule estimates for ITER construction, as well as site requirements. This report will be reviewed thoroughly by the Parties and will strongly influence the Parties' views on whether and how to proceed with planning for ITER construction.

The ITER Parties have not yet made a commitment to ITER construction. U.S. participation in the construction and siting of ITER will require a major policy decision that goes beyond technical issues and considers economic benefits, personnel and financial resources, and safety and environmental issues, as well. As part of developing a U.S. Government position on these issues, the Department is engaged in discussions within the Administration and will continue to consult with Congress.

Returning to our domestic program, the Department plans to construct TPX at PPPL, using the TFTR building and much of its existing auxiliary systems. This approach would make efficient use of the significant investment that has already been made in developing a fusion research capability at PPPL. The TPX will provide the basis for the design of more compact and economically competitive fusion power plants. Based on current assumptions of annual funding levels, the Total Project Cost of TPX is estimated at \$742.0 million (in as-spent dollars) with project completion late in 2001. Once completed, it would be the only large U.S. tokamak operating in the early years of the 21st Century and would serve as the mainstay for our domestic fusion program in support of ITER. As I indicated earlier, actual construction of TPX will await the results of the PCAST review.

The TPX and ITER would enjoy a productive synergism. TPX would be the first tokamak in the world to use superconducting magnets in the geometry similar to that planned for ITER. TPX would benefit from the planned ITER research and development. ITER, in its nuclear testing phase, would benefit from the information developed in TPX.

Another goal of the fusion energy program is to involve U.S. industry more directly in order to facilitate the transfer of fusion technology to the industries that will ultimately design, build, and operate fusion power plants. To this end, both ITER and TPX include industry partners in all aspects of design and research and development.

The Inertial Fusion Energy program strategy, separate from the present science-based stockpile stewardship program of the Office of Defense Programs, will direct its effort to the development of energy-specific components. Because of its high efficiency, anticipated reliability, and high repetition rate, a heavy ion accelerator has been consistently identified as the best driver candidate for inertial fusion energy. The principal requirement is the ability to focus the driver ion beam to a small, high-intensity spot in order to reach the radiation energy required to ignite the target.

In summary, inertial fusion energy has considerable promise, but depends on science and technology development that is carried forward for other purposes. A goal-oriented inertial fusion energy development program would not be appropriate for about a decade after the presently planned program provides fundamental information on physics and the driver.

FY 1996 FUSION ENERGY BUDGET REQUEST

Budget Authority in Millions

Energy Supply R&D Fusion Energy	FY 1994	FY 1995	FY 1996 Request
- Operating Expenses	311.2	356.1	299.4
- Capital Equipment	15.5	10.3	12.5
- Construction	1.9	2.0	54.1
Subtotal Fusion Energy	328.6	368.4	366.0
- Less General Reduction	- 6.4	- 2.1	-
Total Fusion Energy	\$ 322.2	\$ 366.3	\$ 366.0

A more detailed budget table for Fusion Energy is provided in Appendix II-C.

The Administration recognizes that significant budgetary commitments are required to meet the previously stated goals. The review of the fusion programs by PCAST and the Office of Science and Technology Policy will include an examination of U.S. participation in ITER construction and the role of the planned TPX facility.

The FY 1996 budget request for Fusion Energy is \$366.0 million. The request includes \$299.4 million for Operating Expenses, \$12.5 million for Capital Equipment, and \$54.1 million for Construction. The request supports four essential program elements for magnetic fusion energy, including participating in the engineering design phase of ITER, initiating construction of the TPX, continuing a base program of physics and technology support, and initiating the safe shutdown and decommissioning of the TFTR facility following the completion of the ongoing experimental program. In addition, support continues for development of inertial fusion components for energy applications, including initiating construction of the Elise, a heavy ion accelerator facility at Lawrence Berkeley Laboratory.

The Operating Expenses budget for the Fusion Energy Program is allocated among six subprograms. For the Confinement Systems subprogram, \$131.5 million is requested for Operating Expenses. This request provides for the safe shutdown of the TFTR facility and the beginning of preparations for removal of the tokamak. Scientists from the TFTR program will begin collaborative efforts on other tokamak facilities in the U.S. and abroad and will complete the analysis of data from the deuterium-tritium experiments. Research and development and

prototype development for the TPX project will continue, but at a reduced level as construction activities begin. The TPX is designed to lead to an improved tokamak power plant and to increase the U.S. ability to contribute to and benefit from the ITER program. The TPX will be used to develop operating techniques that would permit design of smaller, less expensive tokamak power plants. It will provide the scientific basis to move from operating times of one or two seconds to the continuous operation needed for an attractive fusion power plant. The total increase in funding for TPX of \$20.1 million over the FY 1995 level is more than offset by a decrease in funding for TFTR of about \$26.4 million.

The DIII-D tokamak experiment at General Atomics and the Alcator C-Mod tokamak experiment at the Massachusetts Institute of Technology will be operated to provide information for the design and operation of ITER and TPX. DIII-D will focus on experiments using more efficient techniques to "drive" current in high-pressure plasmas. Alcator C-Mod will study techniques to confine high density plasmas using a "magnetic divertor" to handle the power and particles coming out of the plasma and interacting with the walls of the vacuum chamber, one of the most critical issues faced in the ITER design. In addition, we will continue activities to shut down the Princeton Beta Experiment (PBX-M) at PPPL. Some U.S. scientists will continue to be involved in international collaborations to keep abreast of developments on alternate confinement concepts, such as reversed field pinches and stellarators, since major work on these concepts has been terminated in the U.S. but is being continued abroad.

The Operating Expenses request of \$48.8 million for the Applied Plasma Physics subprogram would support experimental and theoretical research to improve the understanding of fusion physics principles and to investigate innovative techniques leading to improved plasma confinement conditions. This subprogram supplements research in the Confinement Systems subprogram by developing and using new diagnostic systems, developing plasma heating and control concepts, and producing basic scientific data necessary to design and conduct power plant-scale fusion experiments. A significant portion of this activity is focused on improving the understanding of how energy and particles are lost from the plasma by mechanisms that "transport" them across the magnetic fields that confine the plasma. We will continue to support the development of new diagnostic tools for use on ITER and TPX and also small-scale studies on selected non-tokamak fusion energy concepts. About one-half of these activities are carried out by universities. Fusion computing and operation of the central computing activity at the Energy Research Supercomputer Center at Lawrence Livermore National Laboratory are also supported under this subprogram.

The request of \$100.4 million of operating funds for the Development and Technology subprogram is primarily for the support of U.S. participation in ITER. The funding requested for ITER is to provide the U.S. share of the EDA phase of the project, which includes the engineering design, supporting technology research and development, and development of model components that could be scaled up to full size. The costs of hosting the San Diego Co-Center for the ITER Joint Central Team are covered, as well. This subprogram also supports a base technology program to develop magnets, heating systems, blankets, and materials for existing and planned experiments. Funding is also included for the long-range development of advanced materials that will not become highly radioactive during service in the power plant, thereby enhancing safety and simplifying waste disposal. Fusion system studies will continue to evaluate the commercial applications of fusion power.

The FY 1996 Operating Expenses request also includes \$3.1 million for the continuing research and development in the Inertial Fusion Energy subprogram. The primary effort will be focused on the physics of heavy ion acceleration. This program will rely on the continuing development of inertial fusion target physics and ignition characteristics information supported by the Department's Defense Programs' budget. Where possible, international cooperation will be pursued to speed overall progress in inertial fusion energy.

The Operating Expenses request also provides \$9.6 million in Program Direction funds for the salaries, benefits, travel and other expenses associated with 82 full-time equivalents required to administer the Fusion Energy program by the Headquarters staff and those at Department of

Energy Operations Offices; and \$6.0 million in the Planning and Projects subprogram primarily to support the program's legal obligation to the Small Business Innovation Research Program.

The FY 1996 Capital Equipment request of \$12.5 million provides for procurement of essential hardware to support the overall program. This includes diagnostic and computer equipment, power supplies, and other components which are essential for conducting research on our experimental facilities. Support for the upgrade of the DIII-D facility to increase its experimental capabilities will continue.

Of the \$54.1 million in FY 1996 Construction funds, \$49.9 million is required for the TPX project to complete Title I design activities, begin Title II design, and procure long-lead materials

Budget Authority in Millions

Energy Supply R&D - Fusion Energy (Construction Summary)	TEC	FY 1995	FY 1996 Request
- Elise (96-E-310)	20.2	0.0	3.2
- Tokamak Physics Experiment (94-E-200)	610.0	0.0	49.9
- General Plant Projects (GPE-400)	N/A	2.0	1.0
Total Fusion Energy Construction		\$ 2.0	\$ 54.1

and superconducting magnets. In addition, \$3.2 million is provided to initiate the Elise project, a linear heavy ion induction accelerator facility that will produce intense ion beams to test many of the features of a heavy ion induction accelerator driver for inertial fusion energy production. The remaining \$1.0 million is for General Plant Projects, which provide for the continuing minor alterations and modifications necessary to meet health, safety, and programmatic requirements and to protect the Government's investment in its facilities.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH (FY 95 - \$431.2M -- FY 96 - \$431.7)

Technology which has evolved from the Department's nuclear medicine program is now being used in more than 100 million diagnostic and therapeutic procedures performed annually.

The Biological and Environmental Research (BER) program supports peer-reviewed research to identify, understand, and anticipate the health and environmental effects of energy use and development. The information developed will also facilitate the understanding of, and technological solution to, major problems in biology, medicine, and the environment. The program uses the unique multidisciplinary research capabilities of the national laboratories, and supports research conducted by faculty and students from universities throughout the U.S. that is focused on six major subprogram areas. These areas are: Health Effects, General Life Sciences, including the human genome, Medical Application, Environmental Research, Carbon Dioxide Research and Global Change, and Analytical Technology. New knowledge and technologies from these research areas will help define the long-term human health and environmental risks from energy production and use. Products of the research will help develop and apply new environmental remediation and protection technologies and facilitate the commercialization of innovative medical diagnostic and therapeutic technologies. Better

understanding of these areas will provide infrastructure and technologies crucial to advancing the U.S. biotechnology industry, permit more cost-effective health care, and improve predictions of the effects of increasing greenhouse gases on the earth's climate on regional and global scales and the potential environmental and economic consequences of human-induced climatic change.

Health Effects Research focuses on developing the information necessary to predict more accurately the risk of mutations, cancer, or heritable damage from low doses of radiation or energy-related chemicals. To reduce the uncertainty in current risk estimates, the fundamental mechanisms for interaction between cells and radiation must be understood, particularly mechanisms of radiation-induced genomic instability and carcinogenesis. The current models for predicting exposure and risks are limited to making predictions of risk to total populations. There is a need for new monitoring and health surveillance methods that detect exposure and predict risks based on individual susceptibility to low-level exposure to chemicals and radiations. Factors affecting individual susceptibility to toxic agents or to disease vary among people and may significantly alter the consequences of exposure to environmental or workplace exposures. The Health Effects Research program includes research to develop new molecular-based tools for health surveillance and biological dosimetry and emphasizes the determination of the genetic basis for individual susceptibility to disease-inducing exposures. Research is also conducted to increase scientific understanding, at the cellular and molecular levels, of fundamental mechanisms of long-term health effects (e.g., cancer, immune system impairment, etc.) of exposure to energy-related materials.

The General Life Sciences Research subprogram focuses on structural biology, molecular and cellular biology, and human genome research. Structural biology, which seeks to understand the relationship of the structure of biological molecules to how they function in living cells, is central to future progress in biotechnology. Structural biology plays a critical role in several missions of the Department, including the rational design of macromolecules with uses in environmental remediation, energy technologies, studies of the health effects of energy development and use, and the development of improved energy-saving processes for industry. The Department conducts structural biology research and development at facilities widely used by academic and industrial scientists, including, for example, the Advanced Light Source, the Advanced Photon Source (beginning next year), and the Stanford Synchrotron Radiation Laboratory.

In molecular and cellular research, scientists seek an understanding of processes that damage and repair biological macromolecules. That knowledge reflects the genetic factors of individual susceptibility to disease and possible health risks from exposure to energy-related materials. Research is also conducted to develop biomolecules of potential significance to biotechnology and to define the genetic characteristics of industrially important microbes.

Human genome research continues to develop and apply the resources and technologies needed to construct chromosome maps and determine the sequence of DNA subunits of each of the 24 different human chromosomes. Increased emphasis is on enhancing automated large-scale DNA sequencing, improving linkages among biological databases of genomic DNA sequences and maps, and expanding capabilities for access to genome information. The ultimate goal of this research is to decipher all three billion DNA subunits that make up the genetic code in each cell of our bodies. The results of genome research will provide insights into the fundamental processes of all living organisms. It will also provide the ultimate genetic and molecular basis for improved risk estimates, detailed understanding of the mechanisms of disease, and the assessments of individual sensitivities to low levels of exposure to physical and chemical agents.

The Department's genome program is heavily oriented toward technology development and has spawned significant joint endeavors with industry. Human genome research continues to have significant impacts in biotechnology and medicine. For example, the capability for economical screening of large numbers of DNA samples using short sequences of DNA subunits with massively parallel computers has been developed and implemented at Argonne National Laboratory. This technology, along with the necessary computational support, has now been transferred to the private sector for commercialization. Also, a \$6.8 million Cooperative Research and Development Agreement (CRADA) was signed between Lawrence Livermore

National Laboratory and a company, Perkin-Elmer, aimed at the development of analytical instrumentation to accelerate DNA sequencing. Another important component of the human genome program is the continuing study of the ethical, legal, and social issues related to applications of information coming out of human genome research.

The General Life Sciences subprogram will also include new research in computational biology in FY 1996. While computational biology spans the full range from biological informatics and databases to computational structural biology, this initiative will focus on the development of software and computer simulations needed to achieve a better understanding of the relationship between structure and function of biological molecules such as proteins and nucleic acids. This research will cut across several BER programs and link both experimental and computational research results through the use of computer science and information technology. The ability to predict the functions of biological molecules will be a key factor in the application of biotechnology to diverse areas of national need, including better understanding of the health consequences of environmental contamination, enhanced uses of bioremediation, and improved structure-based drug design. The Department has unique computational capabilities that can be brought to bear on these problems, and the combination of these capabilities with the experimental data on proteins and nucleic acids that are evolving from the Office of Energy Research's synchrotron radiation facilities and human genome centers should lead to significant impacts on U.S. competitiveness in biotechnology.

The Medical Applications subprogram carries out our responsibility to develop beneficial applications of energy related technologies for medical diagnosis and treatment, and to develop a world class program for sustaining and extending U.S. leadership in the field of nuclear medicine for the 21st Century. The program draws upon the Department's multidisciplinary research and technological capabilities to foster comprehensive research aimed at the preparation of improved radioisotopes and radiopharmaceutical agents, and at the development of advanced medical imaging instrumentation, monoclonal antibodies, molecular nuclear medicine, and boron neutron capture therapy research.

Radiopharmaceutical research involves radioisotopes attached to drugs which are then administered to patients (*in vivo* procedures) for more than 50 different types of diagnostic tests, including bone, heart, lung, brain, thyroid, kidney, liver, gall bladder, and colorectal scanning. The technologies developed will contribute to improved health care delivery while reducing its costs through achievement of earlier diagnosis of diseases such as cancer, development of new approaches to effective cancer therapy, and a more complete understanding of normal organ function and dysfunction in diseased states.

The Environmental Research subprogram conducts research on a wide range of environmental issues, with a common strategic theme of quantifying how energy related agents move through, impact, and are changed by the atmosphere and by terrestrial and marine ecosystems. These are key issue areas within the National Science and Technology Council's (NSTC) Committee on Environment and Natural Resources. For example, research is underway to investigate fundamental physical, chemical, and microbiological processes in the subsurface environment. Such strategic research provides the underpinning for new cleanup technologies in the long term, including the possible application of biotechnology, and the basic understanding necessary to improve predictive capabilities. Research on the microbial genome brings together scientific advances from human genome research and subsurface scientific research to develop biotechnology solutions to environmental remediation. The continued construction of the Environmental Molecular Sciences Laboratory provides a future capability with first-of-a-kind experimental tools to develop advanced technologies for environmental cleanup. Marine research focuses on the role of the coastal regions in the carbon cycle. This directly supports the need to understand the basic physical, biological and chemical mechanisms that control the atmospheric concentrations of greenhouses gases like carbon dioxide. Atmospheric chemistry research is providing information on trends in mid-latitude stratospheric ozone and ultraviolet-B radiation as well as the physical and chemical controls in the atmosphere. Research on terrestrial ecosystems provides basic data on how these systems respond to change. By understanding the fundamental

mechanisms of the responses, the impacts of human-induced change (e.g., climate change) can be predicted.

The Department's Carbon Dioxide Research subprogram is designed to improve our predictive understanding of the potential contribution and consequences of energy production and use on the earth's climate system. The research is intended to provide a scientific underpinning for assessing the effects of human activities on the earth's climate, the potential consequences of human-induced climatic changes, and the need for response options for adapting to or mitigating adverse changes. This research is coordinated with that of 11 other agencies through the NSTC's Committee on Environment and Natural Resources. To understand the role of energy-related emissions in human-induced climate change, significant reliance is being placed on developing and improving general circulation models (GCMs). A major goal of the Department's global change research is to foster development of GCMs capable of predicting the timing and magnitude of greenhouse gas-induced global warming and to quantify the regional consequences of such warming. The Department's Atmospheric Radiation Measurement (ARM) research is directed at one of the highest priority science questions and is designed to quantify the effect of clouds and water vapor on the earth's energy balance over a climatologically significant time scale and to determine the best way of capturing these effects in GCMs. ARM consists of coordinated measurements at three sites with different climate regimes; one ARM site is operational and two others are under development. The second site is scheduled to begin its phased deployment in the fall of 1995 and the third site is scheduled to begin operation in 1997. The ARM unmanned aerospace vehicle is providing unique information on cloud properties essential to understand the recently observed enhanced absorption of solar radiation by clouds. The Computer Hardware Advanced Mathematics and Model Physics (CHAMMP) program has delivered a new ocean model using massively parallel supercomputers, providing an improved predictive tool for global climate change research. Ocean research continues to support national and international programs to understand how carbon and heat are stored in the world's oceans. Such an understanding is essential to developing the improved predictive tools for global climate change.

The Analytical Technology subprogram supports development of new measurement technologies required for other BER priority areas in environmental and health effects research, notably, oceanographic measurements related to global climate change, characterization of contaminated subsurface environments, and chemical measurements in biological cells.

FY 1996 BIOLOGICAL AND ENVIRONMENTAL RESEARCH BUDGET REQUEST

Budget Authority in Millions

Energy Supply R&D - Biological & Environmental Research	FY 1994	FY 1995	FY 1996 Request
- Operating Expenses	326.7	341.4	340.6
- Capital Equipment	21.0	24.5	24.0
- Construction	47.5	70.7	67.1
Subtotal Biological & Environmental Research	395.2	436.6	431.7
- Less General Reduction	- 6.9	- 5.4	-
Total Biological and Environmental Research	\$ 388.3	\$ 431.2	\$ 431.7

A more detailed budget table for Biological and Environmental Research is provided in Appendix II-D.

The FY 1996 budget request for the Biological and Environment Research program is \$431.7 million. Of that amount, \$340.6 million is for Operating Expenses, \$24.0 million is for Capital Equipment, and \$67.1 million is for Construction.

The \$33.1 million requested for Health Effects Research will support work to improve estimates of the type and magnitude of human health risks that result from exposures to low levels of energy-related agents such as radiation and chemicals both at home (e.g., radon) and at work (e.g., waste site cleanup). This research will emphasize the development of biological markers of exposure and susceptibility that will form the basis for the future development of individualized risk estimates, as well as retrospective analyses of environmental or occupational exposures to energy-related radiation and chemicals. The subprogram conducts research that utilizes the unique resources and tools developed in the Department's radiation biology, human genome, and cellular and molecular biology programs.

The FY 1996 Operating Expense request for the General Life Sciences subprogram is \$113.6 million. Within this request, \$70.0 million is requested for human genome research. Genome research will continue to emphasize the development and application of innovative, faster and more cost-effective approaches for determining the sequence of DNA subunits by integrating new instrumentation into sequencing systems, enhancing large-scale sequencing, improving linkages between biological databases that support sequencing and mapping, and expanding capabilities for interpreting DNA sequence information. Additional effort will be applied to facilitating transfer of technologies into the private sector. We will continue to address ethical, legal, and social ramifications of using information from the program, with emphasis on those issues related to the privacy and confidentiality of genetic information.

The General Life Sciences Operating Expenses request includes \$22.4 million for structural biology activities, including increased funding for staffing and technical support of user resource centers for the U.S. scientific community at the Department's synchrotron and neutron beam facilities, and for a training program for new users of these facilities. The request provides for new research in computational biology that will couple advances in structural biology and genome research with information technologies as the first step toward developing a national information infrastructure for biology. This infrastructure will facilitate progress in biotechnology and the translation of basic research to medical applications. The request also supports molecular and cellular biology research to apply technology developed for human genome research to gain an understanding of genetic factors that determine an individual's susceptibility to adverse health risks from exposure to energy-related materials, to develop new and modified biomolecules of potential significance for biotechnology, and to study the basic genetics of industrially important microorganisms.

Within the \$38.9 million request for the Medical Applications subprogram, research in molecular nuclear medicine will provide significant insight into the mechanisms of macromolecular interactions underlying normal genetic, cellular, and physiological processes. Nuclear Medicine research has contributed significantly to advances in the use of Positron Emission Tomography and Single Photon Emission Computer Tomography for *in vivo* quantitative estimates of perfusion, metabolism, and concentrations of radiopharmaceutical docking stations for biochemical interactions in living subjects. Building on the historic achievements of the DOE program in the area of medical applications, and using the modern tools from molecular biology, genome, and structural biology, the program will foster a new generation of novel techniques and instruments as a beginning step toward revolutionary advances in diagnosis and treatment. The goals are to develop new radioisotopic molecular approaches and highly sensitive radionuclide imaging tools to study the molecular biology of normal cell and human disease *in vivo*. In Boron Neutron Capture Therapy research, two Phase I clinical trials have been approved by the Food and Drug Administration (FDA) and are now in progress using recently developed boron-labeled compounds that have significantly better biodistribution to tumors than earlier materials. An application to advance to Phase II trials with brain cancer patients has been submitted to the FDA.

The FY 1996 Operating Expenses request of \$50.1 million for Environmental Research supports the Department's strong commitment to strategic research that addresses energy-related environmental issues, including terrestrial research, microbial genome research for waste cleanup, ocean margins research, atmospheric sciences research, and ecosystems research.

Terrestrial Research will focus on the processes that influence the transport and fate of contaminants from defense facilities and energy-related wastes. This will include research on immobilizing and transforming contaminant plumes in different soils and climatic conditions using in situ microbial and other methods. These efforts will continue to be carried out in collaboration with the Offices of Environmental Management, Defense Programs, and other program offices to leverage financial resources and to develop cost-effective and efficient in situ technologies for remediating contaminated environments.

Understanding the basic physical, chemical, and microbiological mechanisms that control the reactions of organics, heavy metals, and radionuclides will provide a basis for new cleanup technologies, and extend national leadership in biotechnology. Exploiting the capabilities and the technologies of the human genome and structural biology programs, research will continue to develop DNA sequence information necessary to understand, manipulate, and engineer industrial and environmentally important microorganisms.

Ocean margins research in FY 1996 will include field experiments that apply molecular biological procedures to improve understanding of biogeochemical processes and the mechanisms that drive the cycling of carbon on the continental shelves. This research will improve understanding of carbon exchanges between continental shelves and the open ocean and other potential sinks.

Atmospheric sciences research will focus on the analysis of recent field experiments to understand the transport, dispersion, and ultimate fate of energy-related agents, with emphasis on chemical processes related to the production and destruction of ozone.

Environmental Research will also support research directed at understanding ecosystem responses to environmental changes. This includes basic biological and ecological research to quantify ecosystem responses resulting from atmospheric and climate changes. This research will define the vulnerability of ecological systems to global changes and the need to mitigate or enhance adaptation to such changes. Research in FY 1996 will focus on the biological and ecological mechanisms that control the observed responses that determine the rates and magnitude of the responses to environmental changes. The research is being carried out in a cooperative mode with other National Science and Technology Committee participants via common solicitations and common peer reviews.

The FY 1996 Operating Expenses request for Carbon Dioxide Research is \$88.4 million. These funds are required for research to predict the future atmospheric concentrations of carbon dioxide and other energy-related greenhouse gases, to predict the rate and magnitude of potential climate change, and to understand and predict the impact of emissions and climate change on ecosystems and human systems. Two of the major elements of this program are the Atmospheric Radiation Measurement (ARM) program and the Computer Hardware Advanced Mathematics and Model Physics (CHAMMP) program. The ARM program is an experimental and modeling program that will improve how climate models describe important atmospheric processes, including the role of clouds, which scientists believe may be the key to the response of the climate system to increasing greenhouse gases. The FY 1996 request includes continued support of the first ARM site in the Southern Great Plains, phased implementation of the second in the Tropical Western Pacific, and planning for the third site in the North Slope of Alaska. The research involves a network of ground-based, remote sensing instruments to provide the data for process-oriented studies of climate change phenomena, including the development of miniaturized instruments for unmanned aerospace vehicles (UAVs) and limited test flights with leased UAVs.

CHAMMP is a strategic research program that seeks to improve the abilities of atmospheric and ocean circulation models to predict climatic response to increasing carbon dioxide and other greenhouse gases in the atmosphere. The program is contributing to coupled atmospheric and ocean climate models capable of running 100 times faster than 1990 vintage models through software using parallel processing and improved mathematical formulations. Fiscal Year 1996 activity will continue to focus on these supercomputer simulations and on continued

improvements in the spatial resolution of climate models for decade and longer-term climate predictions.

The FY 1996 request for Carbon Dioxide Research would also support research on terrestrial carbon processes; continue the internationally acclaimed research on global climate model diagnostics; and support the National Institute for Global Environmental Change (NIGEC) and the six NIGEC Regional Centers that are supporting research on the regional consequences of global climate change. It would maintain fellowships and scholarships at universities and the national laboratories in global change research; continue the global survey of carbon dioxide in the world's oceans; and support integrated assessment and economics research to study the impact of climate change on various potential energy sources. The ocean and terrestrial carbon research will elucidate uncertainties of the global carbon cycle, including the unaccounted for carbon dioxide emitted to the atmosphere and the unexpected slowdown in the rate of increase of atmospheric carbon dioxide concentrations.

The FY 1996 Operating Expense request includes \$8.9 million for the Analytical Technology subprogram. This subprogram will focus on new and improved instrumentation for single cell imaging and analysis to study potential health impacts of energy related radiation and chemicals and to evaluate damage to phytoplankton populations in the oceans. New microsensor technology for detection of hazardous substances in the environment will continue to be developed.

Budget Authority in Millions

Energy Supply R&D - Biological and Environmental Research (Construction Summary)	TEC	FY 1995	FY 1996 Request
- Structural Biology Support Facilities, LBL (94-E-337)	7.9	4.7	2.6
- Structural Biology Center, ANL (94-E-338)	14.9	6.7	4.3
- Human Genome Laboratory, LBL (94-E-339)	24.6	15.8	5.7
- Environmental and Molecular Sciences Laboratory (91-EM-100)	207.9	40.0	50.0
- General Plant Projects (GPE-120)	N/A	3.5	4.5
Total Biological and Environmental Research Construction		\$ 70.7	\$ 67.1

The FY 1996 request for Program Direction is \$7.6 million. These funds are required for the salaries, benefits, travel, and other expenses associated with 62 full-time equivalents required to administer the BER program.

The Capital Equipment request of \$24.0 million is required to support replacement of deteriorated and obsolete equipment at the laboratories and to acquire new, state-of-the-art equipment, particularly for human genome, structural biology, and carbon dioxide research. The request also provides essential equipment for ARM, including equipment for UAVs.

As indicated above, the FY 1996 Construction request for BER is \$67.1 million. This includes \$50.0 million to continue construction of the Environmental Molecular Sciences Laboratory (EMSL) at Pacific Northwest Laboratory. The EMSL will provide a state-of-the-art user facility and research center to conduct research on molecular science issues in geochemistry and biology which are particularly critical to the Department's environmental restoration mission. Another \$5.7 million in Construction funding is requested for continuation of the Human Genome Laboratory project at Lawrence Berkeley Laboratory. This project will provide a state-of-the-art facility for carrying out interdisciplinary human genome research. The request also includes \$4.3 million for a Structural Biology Center at Argonne National Laboratory and \$2.6 million for the Advanced Light Source Structural Biology Support Facility at Lawrence Berkeley Laboratory.

Also included in the request is \$4.5 million for General Plant Projects that are necessary to keep the general plant of the laboratories (e.g., buildings, roads, and utilities) in good operating condition.

LABORATORY TECHNOLOGY TRANSFER

(FY 95 - \$56.6M - FY 96 - \$58.8M)

Based on progress to date, there is a reasonable prospect for recapturing up to 50% of business lost to imports over the past decades, through the AMTEX™ partnership between the U.S. Textile industry and the Department, resulting in the creation of 250,000 jobs in the next 10 years.

The Laboratory Technology Transfer program supports leveraged collaborations with U.S. industry in laboratory core competency areas relevant to industry needs. This industrial collaboration research and development program supports quick response technology deployment projects with emphasis on small and minority businesses, Cooperative Research and Development Agreements (CRADAs), and major industry-driven partnerships such as the AMTEX™ partnership with the textile industry. Program activity is focused in technology areas where respective laboratory core competencies are strongest.

The program continues to leverage government funds with private sector funds, and has, to date, averaged an industry cost share of 50 percent. Cost sharing by industry participants for projects, an essential component of technology collaborations, ensures that industry is committed to commercializing the technology under development and helps strengthen the laboratory core competency areas.

In FY 1995, the program (1) continued support for the AMTEX™ partnership; (2) initiated support for the Advanced Computational Technology Initiative (ACTI); (3) initiated 61 new multiyear CRADAs; (4) fully implemented block funding to the Energy Research laboratories which allows them to select projects which meet the real time needs of industry; and (5) streamlined the CRADA project selection process, resulting in a processing time reduction of approximately 50 percent.

FY 1996 BUDGET REQUEST FOR LABORATORY TECHNOLOGY TRANSFER

Budget Authority in Millions

Energy Supply R&D - Laboratory Technology Transfer	FY 1994	FY 1995	FY 1996 Request
Operating Expenses -Lab Technology Transfer	36.4	55.9	58.8
Operating Expenses -Technology Utilization	1.0	1.0	0.0*
Subtotal Technology Transfer	37.4	56.9	58.8
Less General Reduction for Use of Prior	- 0.7	- 0.3	-
Total Technology Transfer	\$ 36.7	\$ 56.6	\$ 58.8

* Technology Utilization has been transferred to a new program under the Deputy Under Secretary for Technology Partnerships and Economic Competitiveness.

The FY 1996 budget request of \$58.8 million for the Laboratory Technology Transfer program will support continuation of 110 ongoing multiyear CRADAs, the AMTEX™ partnership, and

small projects at Energy Research laboratories, particularly with small businesses. The latter include technology maturation projects, personnel exchanges, technical assistance/consultation, and small CRADAs. In addition, the request will support the ACTI partnership at the same level and will initiate participation in the Partnership for New Generation Vehicles.

ENERGY RESEARCH ANALYSES (FY 95 - \$3.5M -- FY 96 - \$3.4M)

The mission of the Energy Research Analyses program is to conduct technical assessments of the Department's civilian research and development programs and to provide direction to future research and development activities. During the past year, senior research managers within the Department, seeking to enhance the quality of their programs, have requested comprehensive project-by-project evaluations of research programs in the areas of solar photochemistry and fossil energy advanced research. Highly specific findings from these reviews provided managers with the authoritative information they needed to modify and improve their programs. Energy Research Analyses also conducted state-of-the-science assessments and research needs assessments on special topics of interest to senior managers across the Department. Support is provided for planning, science policy analyses, and development of basic science strategic plans.

The FY 1996 budget request of \$3.4 million will provide funding for one technical assessment of programs either in the Office of Energy Research or another Department office. Research and development projects currently in progress across the Department will be carefully peer reviewed by drawing upon leading experts. Assessments of special topics of interest to Department of Energy senior managers will also be conducted.

MULTIPROGRAM ENERGY LABORATORIES-FACILITIES SUPPORT (FY 95 - \$41.6M -- FY 96 - \$51M)

In many research areas, U.S. industry relies heavily upon the Department's facilities to conduct experiments that would otherwise be too expensive, or even impossible, to carry out in the United States.

The Multiprogram Energy Laboratories-Facilities Support (MEL-FS) program addresses the general purpose infrastructure needs at the five multiprogram energy laboratories and the Oak Ridge Institute for Science and Education. The five multiprogram energy laboratories are: Argonne National Laboratory-East, Brookhaven National Laboratory, Lawrence Berkeley Laboratory, Oak Ridge National Laboratory, and Pacific Northwest Laboratory. These laboratories have an average age of 30 years and have an estimated replacement value of over \$10 billion.

Fulfillment of the science and technology goals and objectives identified in the Department's Strategic Plan depends heavily on the existence and operating efficiency of these multiprogram laboratories. However, much of the infrastructure of these laboratories is old, deteriorating, and obsolete and needs improvement to comply fully with the environment, safety and health requirements in effect today and to meet operational needs.

The MEL-FS program is designed to preserve the government's investment in infrastructure and to maintain infrastructure integrity in a reasonable and economic manner at these laboratories. The program has three subprograms: General Purpose Facilities (GPF); Environment, Safety and Health (ES&H) Support; and Inactive and Surplus Facilities. These subprograms help to ensure

that the infrastructure of the laboratories is adequate to support the Department's missions now and into the future. The FY 1996 budget request for MEL-FS is \$51.0 million.

The GPF subprogram supports line-item construction to rehabilitate and replace general purpose infrastructure and provides operating funds to support facilities planning and management activities. This subprogram also includes funding for General Plant Projects (GPP) and General Purpose Equipment (GPE) at Oak Ridge National Laboratory and the Oak Ridge Institute for Science and Education. The FY 1996 request for GPF is \$21.2 million for Construction, which provides for GPP funding as well as the completion/continuation of six ongoing line-item projects; there are no new construction starts in FY 1996. An additional \$0.6 million is requested for Operating Expenses for related facilities planning and management and \$5.8 million is requested for Capital Equipment.

Energy Supply R&D -- Multiprogram Energy Laboratories - Facility Support	FY 1994	FY 1995	FY 1996 Request
- General Purpose Facilities	32.9	28.2	27.6
- Environment, Safety and Health	6.7	14.3	22.9
- Inactive and Surplus Facilities	0.5	0.5	0.5
MEL-FS Subtotal	40.1	43.0	51.0
- Less General Reduction	- 0.8	- 1.4	-
Total Multiprogram Energy Laboratories - Facility Support	\$39.3	\$ 41.6	\$ 51.0

A more detailed budget table for Multiprogram Energy Laboratories - Facility Support is provided in Appendix II-E.

The ES&H Support subprogram continues to support necessary site-wide ES&H actions identified in the Department of Energy Environment, Safety and Health Management Plan. The FY 1996 request is \$22.9 million. The increase above the FY 1995 level of \$8.6 million is based on needs identified and prioritized in the DOE ES&H Management Plan. The request includes \$8.2 million for ES&H Operating Expenses to support the highest priority corrective actions and compliance issues. The Construction request of \$14.2 million would provide for completion/continuation of six ongoing projects and initiation of three new projects. The three new line-item projects are: the Building Electrical Service at Argonne National Laboratory-East; Building 801 Renovations at Brookhaven National Laboratory; and the Sanitary Sewer Restoration at Lawrence Berkeley Laboratory. The request also includes \$0.5 million for ES&H-related Capital Equipment.

The FY 1996 request for the Inactive and Surplus Facilities subprogram is \$0.5 million. It will provide for cleanup, removal, or preparation for transfer of such facilities to DOE's Office of Environmental Management for decontamination and decommissioning. A backlog of inactive and surplus facilities at the laboratories has accumulated over the years as missions, programs, and technologies have changed. Actions are prioritized based on the estimated surveillance and maintenance cost reductions, the reduction of ES&H liabilities, and site/facility reuse potential.

ADVISORY & OVERSIGHT PROGRAM DIRECTION AND POLICY & MANAGEMENT (FY 95 - \$14.7M -- FY 96 - \$12.0M)

The FY 1996 budget request for Advisory and Oversight Program Direction is \$9.8 million. The request will provide the salaries, benefits, travel, and other expenses associated with 79 full-time equivalents required to carry out my responsibilities as Director of Energy Research under legislation (P.L. 95-91), and also those assigned or delegated by the Secretary in areas beyond the scope of other ongoing Energy Research programs.

This program supports the staff in the Office of Energy Research who assist me in carrying out my statutory responsibilities to provide advice and analyses to the Secretary on science and technology issues. They provide advice on Department of Energy scientific and technology plans, programs, and policies; develop and assess policies designed to ensure the overall strength and vitality of the multiprogram laboratory system including infrastructure resource management activities; and manage the Energy Research Laboratory Technology Transfer program.

This program also funds staff in Energy Research's Office of Environment, Safety and Health Technical Support. This Office is responsible for providing crucial environmental, safety and health support and guidance to Energy Research's highly complex scientific programs.

The FY 1996 request for Policy and Management is \$2.2 million. These funds are required to provide for the salaries and related expenses associated with 18 full-time equivalents who provide overall management direction in the immediate Office of the Director of Energy Research.

I would now like to discuss our programs under the General Science and Research appropriation. These include the High Energy Physics and the Nuclear Physics programs.

HIGH ENERGY PHYSICS (FY 95 - \$642.1M - FY 96 - \$685.6M)

In 1994, Scientists supported by the Department have obtained experimental evidence for the existence of the "Top Quark", providing verification of the Standard Model, a greatly simplified picture of the physical world at its most fundamental level.

The High Energy Physics budget request includes \$15 million of the \$100 million for the Science Facilities Initiative. High Energy Physics research is directed at understanding the nature of matter and energy at the most fundamental level, as well as the basic forces which govern all processes in nature. This fundamental research not only helps us learn how the world works; it also contributes to the Nation's competitiveness in the marketplace. Each bit of new knowledge gained provides new ways of looking at the universe which lead to new possibilities of direct benefit to mankind. The pursuit of high energy physics research requires accelerators and detectors utilizing state-of-the-art technologies in many areas, including fast electronics, high speed computing, superconducting magnets, and high power radiofrequency devices. In these areas, high energy physics research frequently drives the technology, which has led to many practical applications in the civilian marketplace. Furthermore, by working with various industries to develop state-of-the-art equipment, research physicists directly help to improve industrial processes and speed new technology to the marketplace. High energy physics also continues to make major contributions to accelerator technology and provide technical expertise to support the widespread utilization of accelerators in other scientific disciplines and in industrial processes such as synchrotron light sources and medical diagnostics and treatment.

The High Energy Physics program has and continues to provide an excellent education to the best and brightest young scientific minds, which allows the program to continue to expand its frontier capabilities. Experimental and theoretical researchers from over 100 universities conduct about three-fourths of this research, with the remaining scientists coming from the national laboratories. These highly skilled scientists and engineers often contribute significantly to the transfer of technology to other fields. In addition, one of the program's best legacies is that more than half of its Ph.D.'s ultimately go into industry, where they find that the broad basic physics training essential to particle physics stands them in good stead.

The Department of Energy provides approximately 90% of the Federal support for the Nation's high energy physics (also called elementary particle physics) research. Our knowledge of the

universe, the fundamental constituents of matter, and the laws of nature that underlie all physical processes continues to grow as a result of this research. The past two decades have shown much progress in understanding the ultimate structure of matter. Experimental discoveries, theoretical insights, and technological innovations continue to lead us toward a unified understanding of matter and energy. The results of this work show a greatly simplified picture of the physical world at its most fundamental level, as contained in the Standard Model, the prevailing theory of the particles and forces that determine the fundamental nature of matter and energy. Although much progress has been made, fundamental questions still are unanswered. For example, have we discovered the ultimate constituents of matter? Are there smaller particles inside the families of particles called leptons and quarks that we currently believe are the fundamental particles? Have all the forces of nature been identified, and are there new kinds of energy sources?

These and other challenging questions are explored by high energy physicists through an interplay of experimental research using accelerators and detectors, and through theoretical studies. Scientists use large particle accelerators to fire subatomic particles at one another or into a fixed target at nearly the speed of light. These collisions are registered and recorded by huge state-of-the-art electronic devices, called detectors, which transmit the information to computers for subsequent evaluation and analysis.

Carrying out this research effectively depends on many factors, including the experimental capabilities, effective use of facilities, and the provision of upgraded and new facilities on a timely basis to take advantage of new technologies and research opportunities. In the U.S., the Department of Energy supports three major high energy physics accelerator centers: the Fermi National Accelerator Laboratory (Fermilab), the Stanford Linear Accelerator Center (SLAC), and the Alternating Gradient Synchrotron (AGS) at Brookhaven National Laboratory. Each of these centers provides unique capabilities and is operated as a national facility available to qualified experimenters from around the world on the basis of the scientific merit of their research proposals. Approximately 2,000 scientists use U.S. high energy physics facilities, and about 200-300 visiting foreign scientists are working at these facilities at any given time.

Fermilab is home to the world's first and highest energy superconducting accelerator, the Tevatron. The Tevatron accelerates protons and antiprotons to an energy of 900 billion electron volts, and provides either a fixed target or a colliding beam research program. The Tevatron colliding beam research program benefits from having two major detector facilities in operation, the D-Zero Detector and the Collider Detector at Fermilab (CDF). These two detectors complement one another in their differing technical emphases on which types of particles they detect, and with what precision. In April 1994, Fermilab announced the first direct evidence for the long-sought sixth quark, called the top quark. The existing evidence points to a top quark with a mass of about 175 billion electron volts—a mass much heavier than had been expected almost two decades ago when the fifth quark (b-quark) was discovered. Definitive confirmation of its existence will require additional data, some of which may be obtained from the ongoing collider operating period. The search will be further enhanced by the recent new world record in the brightness or luminosity of the Tevatron antiproton-proton colliding beams, which substantially exceeded the previous world record set at Fermilab just a year ago. The new record is the result of full implementation of the Linac Upgrade project, plus several months of precision tuning of the 1,000 superconducting magnets in the accelerator. This latest luminosity, over ten times the design intensity of the original Tevatron project of ten years ago, may provide the additional data needed to confirm fully the top quark's existence and to measure its properties. Scientists are eager to find and study the top quark, since its existence would strongly support the Standard Model; and direct knowledge of its mass is a key to other theoretical predictions.

Construction of the Fermilab Main Injector Project is progressing on schedule toward completion in 1999, and within estimated costs. By providing a five-fold increase in the intensity of antiproton-proton collisions, this project will greatly enhance the physics capabilities of the Tevatron accelerator complex and its detector facilities by the end of the decade, and hence greatly increase the likelihood for major new scientific discoveries early in the next century.

At SLAC, the Stanford Linear Collider (SLC) is the world's only operating high energy linear collider. The SLC continues to collect data using its beam of polarized electrons, a capability unique to the SLC. In these experiments, a high energy beam of polarized electrons, which spin in alignment with the beam axis, collides with an unpolarized beam of positrons (the electron's antimatter counterpart) to produce what are referred to as Z particles, the heaviest known elementary particles. This unique polarized beam capability gives physicists an added degree of control over the experimental conditions. Studies of collisions involving polarized electrons provide important information about their interaction with positrons which is not otherwise easily available. More than 100,000 Z particles were observed and recorded by the SLAC Large Detector (SLD) during FY 1994. So far in FY 1995, over 60,000 Z's have been recorded. In fact, one of the critical parameters of the Standard Model has been measured by the SLD more accurately than by any other single experiment, the crucial parameter that determines the degree of mixing between the weak and electromagnetic forces in the Standard Model. As a result, the SLC is continuing to produce first-class scientific results that are competitive with those produced by other laboratories around the world. Additionally, the spin of the proton has been described in terms of its quark constituents through experiments at SLAC and the European Center for Particle Research (CERN).

Construction of the B-factory project began at SLAC in FY 1994 as part of the President's Investment Initiatives. The B-factory, which is scheduled for completion in 1998, will provide a high luminosity, asymmetric electron-positron colliding beam facility for study of violation of charge/parity conservation, or CP violation. CP violation is a fundamental symmetry-breaking process that is believed to be responsible for our very existence. Without it, the equal amounts of matter and antimatter that it is thought were formed at the origin of the universe might by now have come together and been annihilated. The project is being designed and built by SLAC in collaboration with Lawrence Berkeley Laboratory, Lawrence Livermore National Laboratory, and other research institutions.

The long-term future of research using electron-positron colliders is being studied at sites around the world. These devices require extraordinarily small beams; SLAC is conducting research and development experiments which have provided the smallest diameter high energy particle beam ever seen. Equipment for these research and development experiments has been assembled at SLAC through an international collaborative effort involving the U.S., Russian Federation, Japan, France, and Germany. The first production of these tiniest beams occurred in FY 1994, and efforts to make them smaller continue.

At the AGS at Brookhaven, the new Booster was fully integrated into the accelerator complex in 1993, and the AGS delivered protons to 10 running experiments and 30 different test beam groups. In addition, its injector linac provided beams for testing materials for the production of radiopharmaceutical isotopes. The Booster has increased beam intensities by a factor of 4, to 4×10^{13} protons per pulse, and one pulse every 4 seconds. Such intensities set new world records. AGS scientists, continuing to study certain very rare ways (or modes) of how particles called kaons decay, are well into a multiyear experiment armed with a more intense kaon beam and an upgraded detector. These improvements have brought the team closer to a goal of processing a trillion positively charged kaons during a single run. The team is mainly searching for a particular decay mode in which a kaon would decay into specific particles: a positively charged pion, a neutrino, and an antineutrino. The Standard Model makes a definite prediction for the fraction of kaons decaying by this mode and, thus, its observation would further verify the Standard Model, refine its physical parameters, and probe the behavior of matter and forces at ultrahigh energies.

As part of the broad international collaboration and cooperation in high energy physics, U.S. physicists are substantially involved in all four experiments (ALEPH, DELPHI, L3, and OPAL) at the Large Electron-Positron collider at the CERN Laboratory in Geneva, Switzerland. Together, these four experiments have recorded over two million events involving the formation and decay of the Z particle; work to date has led to precise determination of parameters of the electroweak interaction. In addition, U.S. physicists are involved in both experiments (ZEUS and

H1) at the Hadron Electron Ring Accelerator (HERA) at the DESY Laboratory in Hamburg, Germany, to gain deep insight into the structure of protons and neutrons.

The future of the U.S. high energy physics program was dramatically altered as a result of the termination of the Superconducting Super Collider (SSC). In addition, the cancellation of the SSC was preceded by several years of constrained budgets for the base high energy physics program. This situation raised many questions about the future of U.S. high energy physics research, and in November 1993, the Department requested that the High Energy Physics Advisory Panel (HEPAP) convene a Subpanel to assess the current program and make recommendations for the future. A HEPAP Subpanel on Vision for the Future of High Energy Physics, chaired by Dr. Sidney Drell, issued a report in May 1994. The report concluded that the current complement of U.S. accelerator facilities is world class. Further, with the completion of scheduled upgrades, it will remain so throughout the coming decade, thus providing university students, faculty, and national laboratory physicists with access to energy frontiers and the potential to make significant discoveries during this time period. The report made it clear, however, that in order to keep the U.S. high energy physics program vital and world class beyond this horizon, funding would need to be restored to the base program and a facility capable of advancing the energy frontier would need to be made available.

The Panel's recommendations outlined a program for maintaining U.S. leadership in international high energy physics research, for productive use of existing domestic facilities and for significant U.S. participation in the Large Hadron Collider project which has been proposed for construction at CERN.

The Department of Energy accepts the basic recommendations of the Drell Subpanel Report and believes they represent a balanced approach to maintaining the health and vitality of the current U.S. program, while at the same time advancing it to the next energy frontier. Therefore, we have requested a level of funding in FY 1996 that will accomplish the goals set forth in the Drell Subpanel Report. In particular, these funds will allow the Department to begin restoring the base program by increasing accelerator operating times at the laboratories, maintaining schedules for current upgrades, providing additional support for university groups, and strengthening technology R&D. In addition, these funds will allow us to begin initial work on experiments to be run on the Large Hadron Collider (LHC) at CERN.

U. S. physicists have shown their strong interest in participating in two major detector collaborations at the LHC and in magnet/accelerator research and development collaborations. CERN would welcome U.S. participation, and international collaboration on this large science project would greatly benefit both the U.S. and CERN. U.S. participation would allow CERN to finish the project at full operating capacity (14 tera electron volts (TeV), versus 10 TeV) in the year 2005 instead of 2008.

The benefits to the U.S. would be extraordinary. U.S. physicists would have continued access to the energy frontier at what will then be the highest energy accelerator in the world. It would ensure continued world class excellence of our university and national laboratory scientists and would provide training to many students in leading edge science and technology. In addition, most of the money the U.S. would spend on LHC detector and accelerator components would be spent in the U.S., with much of it going to industry to build these components. This would improve the capabilities and expertise of participating U.S. scientists and industries and would ensure their access to the high level technology being developed. The LHC also provides an excellent showcase to the European Common Market for U.S. high tech industrial capabilities.

An Interagency Working Group, which I chair, has been established to lay the framework for future discussions and support negotiations with CERN regarding U.S. participation in the LHC. We anticipate that representatives from CERN will visit the Department in the next few months to begin to develop the basis for an agreement. Of course, we will want to obtain your views on this matter.

FY 1996 HIGH ENERGY PHYSICS BUDGET REQUEST

Budget Authority in Millions

General Science And Research - High Energy Physics	FY 1994	FY 1995	FY 1996 Request
Operating Expenses	463.8	474.7	494.8
Capital Equipment	60.1	57.7	63.2
Construction	86.3	109.7	127.6
Total High Energy Physics	\$ 610.2	\$ 642.1	\$ 685.6

A more detailed budget table for High Energy Physics is provided in Appendix II-F.

The FY 1996 budget request for High Energy Physics is \$685.6 million. Of the total amount, \$494.8 million is for Operating Expenses, \$63.2 million is for Capital Equipment, and \$127.6 million is for Construction.

The Operating Expenses request of \$494.8 million provides for the continued participation of both experimental and theoretical university and National Laboratory scientists and students who are critical to the success of the High Energy Physics program, as well as for the operation of the High Energy Physics accelerators: the SLC, the Tevatron accelerator/collider, and the AGS. Priority will be given to the analysis of existing data and data collection at these facilities. The Tevatron collider in FY 1996 will shift to fixed-target operations following the long collider run in FY 1994 and 1995.

Physics research at SLAC will continue to emphasize use of the polarized electron beam capability of the Stanford Linear Collider and the Stanford Large Detector with the highest possible beam luminosity and polarization. We anticipate that more than 120,000 polarized Z's will be recorded in FY 1996. In parallel, SLAC will continue physics research using fixed targets at the end of the linac, as well as research and development for the B-factory and for the next generation of very high energy electron-positron linear colliders.

The recently commissioned AGS Accumulator/Booster has improved the performance and capabilities of the AGS, which has significantly increased the data collection rate for the experimental program. In FY 1996, the AGS will continue research on direct tests of the Standard Model through detailed study of rare decay modes of kaons. These and other studies will continue to provide experimental results for comparison with the Standard Model.

The FY 1996 Operating Expenses request also includes funding to support long-range accelerator and detector research and development to develop the new concepts and technologies that are essential to the efficient operation, continued enhancement, and extension of accelerator and detector capabilities.

The FY 1996 Capital Equipment request of \$63.2 million will provide the particle beam-line components, detection apparatus, and data analysis systems essential to conduct forefront high energy physics research. In FY 1996, priority will be given to upgrading the CDF and D-Zero detectors at Fermilab and to the B-Factory detector at SLAC.

The FY 1996 Construction request of \$127.6 million includes \$52.0 million for continuation of the Fermilab Main Injector project. This project will greatly increase the numbers of protons and antiprotons that can be injected into the superconducting Tevatron, accelerated to world-record high energies, and brought into head-on collisions. This will further increase the research capabilities of the existing detector facilities at Fermilab. In particular, the first experimental observation of the long-sought top quark predicted by the Standard Model will be very likely, or its nonexistence in the predicted mass range will be demonstrated, thus showing the way toward modifying the Standard Model. The FY 1996 request will provide for completion of the Main

Injector ring enclosure. About 40 percent of the dipole magnets will be procured (in addition to the one third already on hand) and power supply construction work will be completed.

Budget Authority in Millions

General Science and Research - High Energy Physics (Construction Summary)	TEC	FY 1995	FY 1996 Request
- Fermilab Main Injector (92-G-302)	229.6	43.0	52.0
- B- Factory (94-G-304)	117.0	44.0	52.0
- Accelerator Improvements and Modifications (95-G-301)	N/A	10.6	9.8
- General Plant Projects (GPE-103)	N/A	12.1	13.8
Total High Energy Physics Construction		109.7	127.6

The FY 1996 Construction request also includes \$52.0 million to continue construction of the B-factory at SLAC to provide for an asymmetric, very high luminosity electron-positron collider. The B-factory will collide ultrahigh intensity beams of electrons and positrons to create tens of millions of subatomic particles called B mesons. Detailed studies of the properties of these particles will help scientists explain why the universe now consists of matter when shortly after the beginning of the universe, matter and antimatter almost certainly existed in equal proportion. This is one of the most fundamental questions of elementary particle physics.

The Construction request also provides \$9.8 million for Accelerator Improvements and Modifications (AIM) and \$13.8 million for General Plant Projects. AIM projects provide for improvements to research accelerators and related experimental facilities, while General Plant Projects address the need to upgrade general laboratory facilities. These projects are needed to maintain the scientific effectiveness, reliability, and efficiency of High Energy Physics facilities. The FY 1996 General Plant Project request provides additional funding for high priority ES&H projects.

NUCLEAR PHYSICS

(FY 95 - \$331.5M - FY 96 - \$321.1M)

1994 saw rapidly growing interest in proton cancer therapy and the use of Department supported accelerator facilities by the "computer chip" industry.

The Nuclear Physics budget request includes \$25 million of the \$100 million for the Science Facilities Initiative. The primary goal of Nuclear Physics research is to understand the structure and properties of atomic nuclei and the fundamental forces between the constituents that form the nucleus. Nuclear processes determine essential physical characteristics of our universe and the composition of the matter which forms it. Because of the strong forces involved, such knowledge is essential for understanding the world around us. Nuclear physics is an area of basic research in which the U.S. maintains a position of world leadership.

Our Nuclear Physics program has a long tradition of developing and transferring of knowledge to enhance our technological and economic competitiveness in such fields as nuclear medicine and power generation. Nuclear medical procedures at U.S. hospitals alone constitute a billion dollar industry. Most of these technologies are mature and are conducted independently of the Nuclear

Physics program, but vital interactions still occur. Current examples include the rapidly growing interest in proton cancer therapy and the use of Department of Energy (DOE)-supported accelerator facilities by the "computer chip" industry to develop improved microelectronic components.

The Nuclear Physics program continues to be a vital source of trained manpower for fundamental research and for these applied technology areas. The program supports the graduate training of approximately 450 students per year, and typically 100 Doctorates in nuclear physics are awarded each year at DOE-supported nuclear physics programs. A majority of these highly trained researchers will take positions in high-technology private industry.

The Nuclear Physics program provides 90 percent of the total support for the U.S. nuclear physics effort. The research is conducted by scientists and students at universities and national laboratories. To ensure a high quality program and continued focus on the highest scientific priorities, a major peer review was conducted in FY 1994. The intellectual challenges and diversity of the field require a variety of particle accelerators operated by the Nuclear Physics program at Argonne, Brookhaven, Los Alamos, Lawrence Berkeley, and Oak Ridge National Laboratories, and at the Massachusetts Institute of Technology (MIT). Experimental time is allocated to researchers at each of these laboratories on the basis of peer review of the scientific merit of the proposed work. Smaller accelerator facilities, dedicated to in-house research, are operated at Yale University, the University of Washington, Texas A&M University, and the Triangle University Nuclear Laboratory at Duke University. In addition, research is performed at High Energy Physics accelerators, National Science Foundation facilities, and foreign facilities.

In FY 1996, we will progress to the next generation of nuclear physics studies. At that time three new major facilities, the Continuous Electron Beam Accelerator Facility (CEBAF) in Newport News, Virginia, the Solar Neutrino Observatory at Sudbury, Ontario, Canada, and the Radioactive Ion Beam Facility at the Oak Ridge National Laboratory, will be available for research on the newest and highest priority areas of nuclear physics.

Over the last several years, the Nuclear Physics program has been restructuring to be able to make the best use of these new facilities. The BEVALAC facility at Berkeley has been closed and the Los Alamos Meson Physics Facility (LAMPF) is being transferred to Defense Programs for operation. A new Long Range Plan for the U.S. Nuclear Physics Program, prepared by the nuclear physics community, is being prepared to ensure that we can address the most pressing scientific questions.

What physics will the new facilities study? Until the last few years, the fundamental understanding of nuclear properties has been based on the idea of a nucleus composed of protons and neutrons which interact through a combination of weak, strong, and electromagnetic forces. It became clear that achieving a real knowledge of many nuclear properties depends on understanding nuclear structure based on quarks and particles (called gluons) which bind the quarks together. Strong evidence indicates that quarks and gluons are the building blocks of protons and neutrons. Nuclear physics studies offer unique ways to investigate and thus understand how nuclei, and thus the material of the universe, is built up from these minute components. Many of the next generation of nuclear physics investigations will study questions related to the quark presence in nuclei.

Such studies require ultra-high resolution "microscopes", accelerators which produce particle beams of very high energy and resolution. The CEBAF facility is such an accelerator. This successful construction project will be completed in FY 1995. Three separate, large, and fully instrumented experimental halls are planned for the laboratory. In FY 1995, the ability to provide beam simultaneously to all three halls will be demonstrated. In FY 1996, two of the three halls will be routinely available for experiments and 5,000 hours of beam will be available for experiments. A high priority experiment to be initiated in FY 1996 at CEBAF is a precise measurement of the distribution of electric charge within the neutron. Although the neutron is

electrically neutral, the three quarks in the neutron are all charged, and a measurement of the charge distribution will shed light on how the quarks move within the neutron.

The early CEBAF experiments will be complemented by studies at the Bates accelerator at MIT and at high energy accelerators such as the Stanford Linear Accelerator (SLAC) in the U.S., the CERN facility in Geneva, Switzerland, and the DESY facility in Hamburg, Germany. Two principal focuses of these studies will be to continue to develop an understanding of how the "spin" of a nucleus originates in the quarks, and how the size of a quark cluster in a nucleus affects the strength of the interaction of that cluster with other nucleons (protons and neutrons) in the nucleus.

Research at CEBAF will study effects due to the presence of quarks in nucleons in the nucleus. However, no one has ever observed a single free quark; they always travel in closely knit groups of threes within nucleons. It is predicted that if a collection of nucleons (i.e., a nucleus) could be compressed and heated to a very high temperature, there would be a phase transition to a new state of nuclear matter in which the quarks are "freed" from their nucleon boundaries to form a so-called quark-gluon plasma. Such a heating and compression might occur when two large nuclei collide head-on at very high, relativistic energies. The quark-gluon plasma would simulate the plasma which is believed to have existed at the first instance of the creation of the universe. The creation of a quark-gluon plasma in the laboratory would provide a unique way of studying the underpinnings of the current Standard Model.

Such a quark-gluon plasma will be produced with the second major facility for the study of new "quark-based" nuclear physics, the Relativistic Heavy Ion Collider (RHIC) at the Brookhaven National Laboratory. RHIC is now under construction and will be completed in FY 1999. The first sextant of the RHIC accelerator will be completed in FY 1996 and initial tests of that part of the system will be conducted.

With the availability of RHIC and CEBAF, we will have a unique capability to study the fascinating possibilities of the quark-based model of nuclear matter. Some investigations leading to the possible formation of the quark-gluon plasma have already been initiated with heavy ion beams at CERN and at the Alternating Gradient Synchrotron (AGS) at Brookhaven National Laboratory; however, their energies are too low to complete the transition from hot dense nuclear matter to the quark-gluon plasma.

There are also exciting prospects in more traditional areas of nuclear physics, and another of the new generation facilities, the Radioactive Ion Beam (RIB) Facility at Oak Ridge National Laboratory, will address these areas. Much of the research activity will be related to questions of nuclear astrophysics. The chemical elements in the universe were created at various times in galactic history during the Big Bang and during the burning of stars. Our understanding of the relative abundances of these elements is still incomplete. Some of the most critical nuclear reactions in the stellar burning processes involve nuclei which, because of their short lifetimes, have not been available for laboratory studies.

The RIB will produce some of these previously unavailable nuclei so that these important stellar processes can be studied in the laboratory. The development of the project has benefitted greatly from the involvement of scientists from the United Kingdom, which has contributed the support equipment for RIB worth several million dollars. Beams for experiments will be available in FY 1996 and it will be possible for the first time to study many processes which are crucial to our understanding of how nuclei were synthesized in the Big Bang. In addition, studies of the structure of new nuclear isotopes at the limits where the nucleons can be bound together, even for a short time, is one of the major thrusts in nuclear physics studies in the world today. The new RIB facility will be used to make and determine the properties of many previously unavailable nuclei, far outside the body of stable and almost stable nuclei we have studied to date.

The third major new facility which will become operational in FY 1996 is the Solar Neutrino Observatory (SNO) in Canada. The project involves an international collaboration among the U.S., United Kingdom and Canada. The solar neutrino problem remains one of the great challenges in astrophysics. The predicted rate of neutrino production in the sun is significantly higher than the observed rate. Results from the ongoing experiment at the Soviet-American Gallium Experiment in Russia and from a second similar experiment, GALLEX, located in Italy, which both detect neutrinos from the primary solar burning process, are now consistent with each other and confirm that only 60 percent of the predicted neutrinos are observed. There are two possible explanations for the discrepancy. Either our understanding of solar burning is very wrong, or the neutrino has a small mass, in contradiction to the long-held belief that it is massless. Early in FY 1995, for the first time, a very precise calibration of the GALLEX experiment with a reactor-prepared neutrino source of known intensity was conducted. The calibration strongly confirmed the previously reported results at GALLEX. With the existing facilities, there is no way to discriminate between two possible origins of the discrepancy. The SNO facility is designed to sort out this longstanding problem, and data collection will start in FY 1996. The resolution of the problem is of major interest to both nuclear and high energy physics. It is important to note that the present Standard Model does not include the possibility for a neutrino with mass. Clearly, FY 1996 is a year of challenge and opportunity for important new studies in the field of nuclear physics.

FY 1996 NUCLEAR PHYSICS BUDGET REQUEST

Budget Authority in Millions

General Science And Research - Nuclear Physics	FY 1994	FY 1995	FY 1996 Request
- Operating Expenses	211.3	225.4	213.3
- Capital Equipment	32.0	28.0	28.0
- Construction	102.0	78.1	79.8
Total Nuclear Physics	\$ 345.3	\$331.5	\$ 321.1

A more detailed budget table for Nuclear Physics is provided in Appendix II-G.

The FY 1996 budget request for the Nuclear Physics program is \$321.1 million. Of that total, \$213.3 million is for Operating Expenses, \$28.0 million is for Capital Equipment, and \$79.8 million is for Construction.

In FY 1996, several new and recently completed/upgraded research facilities will be available for research for the first time. The Operating Expenses request is designed to provide the maximum possible operating hours for these new facilities, so that researchers may take full advantage of their unique new capabilities. CEBAF will operate for 5,000 hours to permit the startup of several high priority experiments to study the quark presence in nuclei. The new Radioactive Ion Beam facility at the Oak Ridge National Laboratory will be operated for 3,100 hours for studies of nuclear measurements of astrophysical significance and for studies of very proton rich nuclei far from stability. The Gammasphere facility at Lawrence Berkeley Laboratory will operate for 5,360 hours for high resolution studies of superdeformed nuclei. The Bates Linear Electron Accelerator at the Massachusetts Institute of Technology will operate for 3,000 hours to take advantage of the new south hall ring facility.

No funds are requested for the operation of the LAMPF facility at Los Alamos National Laboratory. On the presumption that the facility will be operated by Defense Programs in FY 1996, research funds will be provided to Los Alamos to conduct high priority experiments at LAMPF. At the University of Washington, funding is provided to the Institute for Nuclear Theory which will continue forefront scientific programs and workshops involving the entire nuclear physics community.

The Capital Equipment request of \$28.0 million is required for experiments at Brookhaven National Laboratory in preparation for the RHIC program, procurement of components for additional detectors at CEBAF, and maintenance of an overall level of instrumentation to use the national accelerator facilities and university facilities in an effective manner. These funds will provide such equipment as particle detection systems, data acquisition and analysis systems, and instrumentation to improve the performance of the accelerators. The Capital Equipment request also includes funds to complete Gammasphere and to augment the detector at SNO for detection of exotic neutrinos. Finally, the FY 1996 request will provide for general purpose equipment to meet the laboratory-wide needs at Lawrence Berkeley Laboratory.

The FY 1996 Construction request for Nuclear Physics is \$79.8 million. Of that amount, \$70.0 million is for construction of RHIC. Nuclear Science Advisory Committee and the National Research Council have both confirmed the importance of this facility, which will provide unprecedented opportunities to produce and study ultradense matter. The request is consistent with a funding profile which will meet the planned construction completion date of 1999. RHIC will be a unique, world-class facility with colliding beams that provide collision energies of 100 billion electron volts (GeV) per nucleon for heavy ions as massive as gold nuclei. The facility will provide the opportunity to form a quark-gluon plasma, creating conditions in the laboratory that are similar to those of the expanding universe microseconds after the Big Bang. The accelerator is being built in the existing circular tunnel at Brookhaven. Construction funds for FY 1996 will be used to continue procurement of the collider ring and detector components. A full system demonstration of the first sextant of the collider ring will be completed.

The CEBAF construction project will be completed in FY 1995, and no line item Construction funds are requested for that laboratory. The Construction request does include \$5.0 million for Accelerator Improvements and Modifications and \$4.8 million for General Plant Projects. These projects are needed to maintain Nuclear Physics facilities and to provide for general purpose projects at Lawrence Berkeley Laboratory and CEBAF.

Budget Authority in Millions

General Science and Research - Nuclear Physics (Construction Summary)	TEC	FY 1995	FY 1996 Request
- Continuous Electron Beam Accelerator Facility (87-R-203)	313.2	1.0	0.0
- Relativistic Heavy Ion Collider, BNL (91-G-300)	475.3	70.0	70.0
- Accelerator Improvements and Modifications (95-G-302)	N/A	3.2	5.0
- General Plant Projects (GPE-300)	N/A	3.9	4.8
Total Nuclear Physics Construction		78.1	79.8

GENERAL SCIENCE PROGRAM DIRECTION (FY 95 - \$10.4M -- FY 96 - \$10.9M)

The FY 1996 budget request for General Science Program Direction is \$10.9 million. These funds are required to provide for the salaries, benefits, travel, and other expenses associated with 89 full-time equivalents required to administer the High Energy Physics and Nuclear Physics programs by the Headquarters staff and those at the Department of Energy Operations Offices.

This concludes my statement. I would be happy to answer your questions.

APPENDIX I

SUPERCONDUCTING SUPER COLLIDER

The Superconducting Super Collider (SSC), a large proton-proton collider for basic scientific research, was under construction near Waxahachie, Texas. The SSC was designed to become the world's preeminent particle accelerator facility for high energy physics research. Research at the SSC was expected to answer questions about the ultimate constituents of matter and energy.

The project was terminated by Congress in 1993 when it passed the FY 1994 Energy and Water Appropriations Bill (P.L. 103-126). Included in this bill was \$640 million for the orderly termination of the SSC.

In November 1993, the Department assigned responsibility for termination of the SSC to the Oak Ridge Operations Office (Oak Ridge), which reports to the Associate Deputy Secretary for Field Management, and the SSC Project Office was reassigned from the Office of Energy Research to Oak Ridge. The Department published a termination plan which is being implemented under the direction of the SSC Project Director. The termination plan is consistent with the FY 1994 appropriations legislation that terminated the SSC project. Consistent with the provisions of this legislation, DOE is: 1) terminating the SSC project in an orderly, cost-effective, environmentally sound, and safe manner; 2) developing a plan to maximize the value of the investment made in the project, including recommendations as to the feasibility of other uses of project assets; and 3) working closely with the employees and other interested parties to mitigate the impact of the termination.

Close-Out Status

A Settlement Agreement was signed by the Department and the State of Texas in November 1994, and a Closing, which implemented formal transfer of property to the Texas National Research Laboratory Commission (TNRLC), was held on December 1, 1994. A transition period in which DOE provided practical assistance to Texas during the property transfer ended on January 31, 1995. This was an important step in the termination process, a necessary ingredient for the swift, efficient, and environmentally sound termination of the project. The agreement resolves claims made by the State, thereby avoiding litigation, and provides the basis on which the use and value of existing Collider assets can be maximized. It provides for an equitable distribution of property between the Department and the State, taking into account the respective Federal and State investment in the project.

The SSC Termination continues to be on schedule and within the budget estimate for the defined termination scope. Major milestones have been accomplished as follows:

- Personnel demobilization has occurred ahead of schedule.
- Technical close-out activities are complete except for records disposition.
- Subcontract close-out activities are on schedule. Of the 20 major subcontracts terminated, 16 settlement proposals have been received, three are due in March 1995, and one proposal has been settled.
- Property dispositions were delayed pending the Texas Settlement but are expected to be completed in 1995.
- Initial site stabilization was completed on schedule and a program plan for site restoration was provided to Texas for comment in December 1994.
- Project definition studies for future on-site use of assets and DOE evaluation of these studies have been completed.

Funding Status

Including the \$640 million provided in the FY 1994 appropriation and the FY 1993 uncosted obligations of \$95.8 million, \$735.8 million was available for termination. Negotiations between

the Department, and the State of Texas resulted in a settlement payment of \$145 million to Texas and an escrow payment of \$65 million for a total of \$210 million leaving \$525.8 million available for termination. The \$65 million is to be a one-time payment to support construction and commissioning expenses of a Texas-proposed cancer treatment and research facility (Regional Medical Technology Center) to be built at the project site in Ellis County, Texas. The \$65 million will be released from escrow when a determination is made that the facility meets the requirements for such a facility as prescribed in the Energy and Water Development Appropriations Act of 1995.

It presently appears that implementation of the settlement and the project termination process can be accomplished within existing SSC appropriations. However, there are still some risks in view of substantial uncertainties, especially regarding the close-out of large subcontracts and the outcome of potential litigation. The Department is making every effort to keep the termination costs within existing SSC appropriations. The Department does not anticipate making any special requests for additional appropriations to support termination or future potential uses of assets at the SSC site. The SSC termination activities continue to be on schedule and within the budget estimate.

There is an additional issue which is outside the defined scope of the termination project. A number of local entities are seeking payments from DOE to offset alleged negative impacts from the decision to terminate the project. The current total of such claims is approximately \$30 million. The analysis of the claims is underway and no determination as to merit has yet been made.

The financial records as of December 31, 1994 are summarized as follows:

SSC FUNDS STATUS
(As of 12/31/94)

Activity	Amount (\$ in millions)
FY 1994 Costs	\$ 318
FY 1995 Costs (Oct. - Dec. 94)	\$ 251
Remaining availability	\$ 167
Total	\$ 736

A more detailed budget table for the Superconducting Super Collider is included in Appendix II-H

Disposition of SSC Assets

Both the Department and the State of Texas have conducted studies of potential on-site uses of major SSC assets and facilities. The State, under a DOE grant for up to \$6 million, conducted project definition studies in four areas of use: research in superconductivity and cryogenics; high-performance computing; a regional medical technology center; and Blackland Prairie restoration. The Department initiated a second set of project definition studies that focused on six other potential on-site uses of assets: scientific study of the velocity of light in a magnetic field; research on convection of cryogenic helium gas; geotechnical research facility; research and science education center; minority institution network; and regional industrial technology institute. The Department made awards to eleven institutions, mostly universities, for eight project definition studies. Reports from both sets of project definition studies were submitted to the Department in late October. They have been peer reviewed and used to determine the interest of Federal, State, and other funding agencies.

Several of the potential on-site activities, especially those related to education, the support of industry, and land uses, are primarily of State interest and will depend on State leadership and funding. In some cases, such as specific scientific experiments, the Federal government would be the logical source of funding. Any formal proposal for such activities will be handled by the Federal agencies using their standard peer review processes.

To maximize their value and usefulness, most of the remaining Department-owned equipment and assets are being made available to other departmental programs and projects, with highest priority given to the High Energy and Nuclear Physics programs. The Department has established a working group of experts whose members help in determining the procedure for equipment reallocation to these programs. The Department has reserved certain of the remaining DOE-owned equipment and assets that are critically needed for on-site activities. Decisions on the reserved equipment and assets will be made in April, taking into account the funding status of the proposed on-site activities.

The complex negotiations and detailed studies have necessarily taken time. The Department will continue to move judiciously to arrive at a reasoned and thoughtful set of recommendations. A report on maximizing the value of the investment made in the SSC is being prepared and will be sent to the Congress and the President in May 1995.

Personnel Status

The Superconducting Super Collider Laboratory (SSCL) total population, which includes Universities Research Association, Inc. (URA) and EG&G, Inc. employees, temporary employees, consultants, and on-site vendor representatives, has been reduced from 2,328 at the time of termination to 416 as of January 31, 1995. This number is projected to decrease to 364 by March 31, 1995, and to approximately 50 by the end of September 1995. This number will steadily decrease in FY 1996 with the SSCL on-site presence expected to end not later than September 1996.

In addition to the SSCL employees, there are currently 39 DOE employees at the site (down from 61 at the time of termination), 12 DOE support service contractor personnel, and 8 MK-Ferguson employees. MK-Ferguson is the contractor performing site restoration activities. These numbers are projected to decrease through FY 1995 and FY 1996 with the DOE presence also expected to end not later than September 1996.

In summary, we believe that SSC termination is proceeding satisfactorily and on schedule and that we are proceeding in a manner which will assure that we maximize the benefits of the Government's and the State's investment in the SSC.

Appendix II-A
Office of Energy Research
Summary by Program
Budget Authority (\$ in millions)

<u>Energy Supply Research and Development</u>	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996 Request</u>
Basic Energy Sciences	\$ 757.8	\$ 733.9	\$ 811.4
Advanced Neutron Source	16.2	20.8	0.0
Fusion Energy	328.6	368.4	366.0
Biological and Environmental Research	95.2	436.6	431.7
Laboratory Technology Transfer	37.4	56.9	58.8
Energy Research Analyses	3.7	3.5	3.4
Multiprogram Energy Laboratories- Facilities Support	40.1	43.0	51.0
Advisory and Oversight	13.4	12.5	9.8
Policy and Management	<u>3.1</u>	<u>2.2</u>	<u>2.2</u>
Subtotal	\$1,595.5	\$1,677.8	\$1,734.3
 <u>General Science and Research</u>			
High Energy Physics	\$ 610.2	\$ 642.1	\$ 685.6
Superconducting Super Collider	640.0	0.0	0.0
Nuclear Physics	345.3	331.5	321.1
General Science Program Direction	<u>9.0</u>	<u>10.4</u>	<u>10.9</u>
Subtotal	<u>\$1,604.5</u>	<u>\$ 984.0</u>	<u>\$1,017.6</u>
Subtotal	\$3,200.0	\$2,661.8	\$2,751.9
Less General Reduction for Use of Prior Year Balances	<u>-29.4</u>	<u>-18.8</u>	<u>-</u>
Total	\$3,170.6	\$2,643.0	\$2,751.9

Appendix II-B
 Energy Supply R&D
 Basic Energy Sciences
 Budget Authority (\$ in millions)

	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996 Request</u>
Operating Expenses			
Materials Sciences	\$ 259.6	\$ 272.3	\$ 348.3
Chemical Sciences	158.9	159.6	181.6
Engineering and Geosciences	35.5	35.9	39.9
Advanced Energy Projects	10.7	10.8	12.0
Energy Biosciences	25.5	27.9	29.5
Applied Mathematical Sciences	99.1	108.1	108.7
Program Direction	<u>9.1</u>	<u>9.9</u>	<u>10.0</u>
Subtotal	\$ 598.4	\$ 624.5	\$ 730.0
Capital Equipment	\$ 43.5	\$ 39.0	\$ 57.0
Construction	<u>115.9</u>	<u>70.4</u>	<u>24.4</u>
Subtotal Basic Energy Sciences	\$ 757.8	\$ 733.9	\$ 811.4
Less General Reduction for Use of Prior Year Balances	<u>- 14.2</u>	<u>- 8.8</u>	<u>-</u>
Total Basic Energy Sciences	\$ 743.6	\$ 725.1	\$ 811.4

Appendix II-C
Energy Supply R&D
Fusion Energy
Budget Authority (\$ in millions)

	<u>TEC</u>	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996 Request</u>
Operating Expenses				
Confinement Systems		\$ 163.2	\$ 187.8	\$ 131.5
Applied Plasma Physics		57.2	54.3	48.8
Development and Technology		78.0	89.0	100.4
Planning and Projects		0.0	7.4	6.0
Inertial Fusion Energy		3.9	8.0	3.1
Program Direction		<u>8.9</u>	<u>9.6</u>	<u>9.6</u>
Subtotal		\$ 311.2	\$ 356.1	\$ 299.4
Capital Equipment		\$ 15.5	\$ 10.3	\$ 12.5
Construction		\$ 1.9	\$ 2.0	\$ 54.1
Subtotal Fusion Energy		\$ 328.6	\$ 368.4	\$ 366.0
Less General Reduction for Use of Prior Year Balances		<u>- 6.4</u>	<u>- 2.1</u>	<u>-</u>
Total Fusion Energy		\$ 322.2	\$ 366.3	\$ 366.0

Appendix II-D
 Energy Supply R&D
 Biological and Environmental Research
 Budget Authority (\$ in millions)

	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996 Request</u>
Operating Expenses			
Analytical Technology	\$ 9.2	\$ 8.7	\$ 8.9
Health Effects	37.0	36.9	33.1
General Life Sciences	97.8	108.9	113.6
Medical Applications	49.9	48.1	38.9
Environmental Research	42.4	44.4	50.1
Carbon Dioxide Research	83.5	86.9	88.4
Program Direction	<u>6.9</u>	<u>7.5</u>	<u>7.6</u>
Subtotal	\$ 326.7	\$ 341.4	\$ 340.6
Capital Equipment	\$ 21.0	\$ 24.5	\$ 24.0
Construction	<u>47.5</u>	<u>70.7</u>	<u>67.1</u>
Subtotal BER	\$ 395.2	\$ 436.6	\$ 431.7
Less General Reduction for Use of Prior Year Balances	<u>- 6.9</u>	<u>- 5.4</u>	<u>-</u>
Total Biological and Environmental Research	\$ 388.3	\$ 431.2	\$ 431.7

Appendix II-E
 Energy Supply R&D
 Multiprogram Energy Laboratories - Facilities Support
 Budget Authority (\$ in million)

<u>Operating Expenses</u>	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996 Request</u>
<u>General Purpose Facilities</u>			
Operating Expenses	\$ 0.7	\$ 0.6	\$ 0.6
Capital Equipment	5.8	5.8	5.8
Construction	<u>26.4</u>	<u>21.8</u>	<u>21.2</u>
Subtotal	\$ 32.9	\$ 28.2	\$ 27.6
<u>Environment, Safety and Health</u>			
Operating Expenses	0.6	6.0	8.2
Capital Equipment	0.5	0.5	0.5
Construction	<u>5.6</u>	<u>7.8</u>	<u>14.2</u>
Subtotal	\$ 6.7	\$ 14.3	\$ 22.9
<u>Inactive and Surplus Facilities</u>			
Operating Expenses	<u>0.5</u>	<u>0.5</u>	<u>0.5</u>
Subtotal	\$ 0.5	\$ 0.5	\$ 0.5
Subtotal MEL-FS	\$ 40.1	\$ 43.0	\$ 51.0
Less General Reduction of Prior Year Balances	<u>- 0.8</u>	<u>- 1.4</u>	<u>-</u>
Total Multiprogram Energy Laboratories - Facilities Support	\$ 39.3	\$ 41.6	\$ 51.0

Appendix F
General Science and Research
High Energy Physics
Budget Authority (\$ in millions)

	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996 Request</u>
Operating Expenses			
Physics Research	\$ 144.7	\$ 139.3	\$ 147.2
Facility Operations	262.5	276.6	280.2
High Energy Technology	<u>56.6</u>	<u>58.2</u>	<u>67.4</u>
Subtotal	\$ 463.8	\$ 474.7	\$ 494.8
Capital Equipment	\$ 60.1	\$ 57.7	\$ 63.2
Construction	<u>\$ 86.3</u>	<u>\$ 109.7</u>	<u>\$ 127.6</u>
 Total High Energy Physics	 \$ 610.2	 \$ 642.1	 \$ 685.6

Appendix II-G
General Science and Research
Nuclear Physics
Budget Authority (\$ in millions)

	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996 Request</u>
Operating Expenses			
Medium Energy Nuclear Physics	\$ 108.3	\$ 125.0	\$ 103.9
Heavy Ion Nuclear Physics	64.8	61.2	66.8
Low Energy Nuclear Physics	23.5	24.6	27.1
Nuclear Theory	14.7	14.6	15.5
Subtotal	<u>\$ 211.3</u>	<u>\$ 225.4</u>	<u>\$ 213.3</u>
Capital Equipment	\$ 32.0	\$ 28.0	\$ 28.0
Construction	<u>\$ 102.0</u>	<u>\$ 78.1</u>	<u>\$ 79.8</u>
 Total Nuclear Physics	 \$ 345.3	 \$ 331.5	 \$ 321.1

Appendix II-H
General Science and Research
Superconducting Super Collider (SSC)
Budget Authority
(\$ in millions)

	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996 Request</u>
Operating Expenses			
Research and Development	\$ 0.0	\$ 0.0	\$ 0.0
Program Direction	<u>12.4</u>	<u>0.0</u>	<u>0.0</u>
Subtotal	\$ 12.4	\$ 0.0	\$ 0.0
SSC Termination	627.6	0.0	0.0
Capital Equipment	\$ 0.0	\$ 0.0	\$ 0.0
Construction (90-R-106)	<u>\$ 0.0</u>	<u>\$ 0.0</u>	<u>\$ 0.0</u>
Total Superconducting Super Collider	\$ 640.0	\$ 0.0	\$ 0.0

BIOGRAPHICAL SKETCH OF MARTHA KREBS

Martha Krebs was nominated by President Clinton on October 21, 1993, to be the Director of the Office of Energy Research (OER) in the Department of Energy (DOE). She was confirmed by the U.S. Senate on November 10, 1993, and sworn into office on November 15, 1993.

As Director, Dr. Krebs manages the OER, one of the largest sponsors of basic research in the Federal government. OER's annual budget of approximately \$3 billion funds DOE's programs in basic energy sciences, high energy and nuclear physics, health and environmental research, fusion energy and scientific computing.

Besides serving as Director of OER, Dr. Krebs is also the Department's Science and Technology Advisor. In this position, she advises the Secretary on science and technology issues that cut across DOE programs, on the transfer of technology from DOE laboratories to industry, on science education and training activities, and on the management of the Department's laboratories. Dr. Krebs is also responsible for the management of the Department's five multi-program and ten single-program non-weapons laboratories as well as developing Department-wide policy for both the weapons and non-weapons laboratories.

From July 1983, until assuming her current position, Dr. Krebs was Associate Laboratory Director for Planning and Development at the Lawrence Berkeley Laboratory. While at the Laboratory, she was responsible for a strategic scientific program planning process, and for technology transfer planning and policy development. She established the Laboratory's Center for Science and Engineering Education, which provides collaborative research experiences at the Laboratory for students, teachers and University of California faculty. Before joining the Laboratory, Dr. Krebs was Staff Director of the Subcommittee on Energy Development and Applications of the House of Representative's Committee on Science and Technology.

Dr. Krebs earned an A.B. and Ph.D. in Physics from the Catholic University of America, in 1975. Her field of research was statistical mechanics. She graduated summa cum laude and is a member of Sigma Xi and Phi Beta Kappa. She was also a National Science Foundation Fellow.

OPENING REMARKS OF SENATOR JOHNSTON

Senator DOMENICI. Let me yield now to Senator Johnston who might have an opening statement. I have not inquired yet. But if you have an opening statement, I would—

Senator JOHNSTON. Mr. Chairman, I do not unless staff has written up one for me, in which event I will put it in the record and adopt it as my own because I am sure they have something smart to say. [Laughter.]

And if they do not have one, I would simply like to welcome Martha Krebs. Dr. Krebs is highly regarded in my office.

BASIC RESEARCH

And I understand, Mr. Chairman, you made a great opening statement in which you said we need to keep the Department of Energy and keep the capability of doing energy research. I could not agree more.

We do not always agree in this country on what research ought to be done. I thought we should have pursued the SSC to a successful conclusion. The Congress felt otherwise. But that is not the only project left. That is not the only scientific research left to be done.

The thing about research, particularly basic research, is you cannot prove the connection between that which you do today and the product which will come off of the assembly line tomorrow.

Sometimes that connection is fanciful. Sometimes it is too far down the line to determine. But if the Government does not do basic research, almost no one else will, particularly today. We need to keep and enhance our national labs.

I hope that we can find a way, or continue to find a way to let them use that great capacity to commercialize some of their knowledge.

And I think working with Martha Krebs and working with you, Mr. Chairman, we are likely to find that role for our national labs.

Other than that, I have no opening statement except to again welcome, Dr. Krebs.

Senator DOMENICI. Thank you very much, Senator Johnston.

Let me just hearken back to about 5 years ago when you and I had a conversation—it was a very simple conversation—about the name of this Department, the Department of Energy. And we were sort of thinking what was coming here now. We were wondering whether we should not change the name and call it the Department of Energy and Science or some such thing, because it now seems that people are beginning to say the science part ought to be done in some other agency, because the energy effort of this Department has not been very good and is not really a Government responsibility. We have essentially over sold the Department of Energy as a contributor to making our energy supply better.

Frankly, what can they do about that? I mean, the tax incentives to keep local oil and gas developers in business is not within their jurisdiction. And the kinds of things that would stimulate our local industry in that regard they do not have any jurisdiction over.

I am fearful that there is lack of confidence in the energy research activities of the Department of Energy. That comes from various sources. Some of this comes from energy producing States

who say, "They did not do anything for oil and gas, so why do we need a Department of Energy."

That is, essentially, what is happening. And in the shuffle, we forget about the fact that DOE is the agency where quality basic science and other research takes place. Unless we want to say that work is not essential or not needed, that is the fundamental question, then the Department of Energy should remain intact.

If we do not need it, if we are not going to do any of that, then, obviously, we ought to seriously consider perhaps the Department of Defense doing the nuclear weapons work. I would resist even that.

So those are the kind of questions that I think we have not even begun to discuss around here. And we are going to see to it that we do.

We are not going to do this in little pieces by gutting the Department of Energy and then finding that there is little left and so now we can get rid of it. They are going to have a real fight on their hands on that.

And I am sure you are going to be right there, either leading it or helping me on that score.

GALVIN REPORT

Dr. Krebs, what about the Galvin report? Have you reviewed it?

Dr. KREBS. I have. And I think that the Office of Energy Research is—well, actually, let me not put it in the context of the Office of Energy Research.

I think that the Galvin report identified some well-known and critical issues associated with the Department's management of the national laboratories.

I think it also affirmed some of the missions of the Department in the laboratory. And, of course, as the Director of Energy Research, I am very pleased that they affirmed the basic research missions of the Department and the laboratories.

I also believe that the Department has taken a very proactive—and I am personally quite encouraged by the approach—to reforming and reducing the DOE directives, making them simpler, consolidating and simplifying their audits and reviews, and reforming the contractors' procurement practices.

I think this will go a long way toward undoing what was done to the laboratories over the last 10 to 15 years.

The issue of the lab operating board is something that we have proposed as a response and a substitute for the Government's issues that the task force identified.

And I am sure that that is going to be subject to a lot of discussion here and within the Department.

Senator DOMENICI. Very precisely, what is the \$50 million to implement the Galvin report going to be used for?

Dr. KREBS. I think it is expected that by making changes associated with reducing and reforming the directives, removing and simplifying audits and appraisals, we will be able to find cost savings within the Department and at the laboratories that allow us to accumulate at least \$50 million.

As you probably well know, that \$50 million is placed within the energy supply R&D appropriation as a place holder. And there is

statutory language proposed that would allow some of the savings to be accumulated in other accounts if, indeed, that is where they occur.

That is my understanding of what has been proposed by the Department.

Senator DOMENICI. Frankly, I know it is not in your direct jurisdiction to try to straighten out the relationship between the laboratories and the strings and requirements mandated by DOE.

But I might just tell you that I think this is another reason that some disrepute is falling on the Department of Energy because, obviously, we have tied the nuclear cleanup activities in knots.

And the Congress has placed many requirements on the work going on at these laboratories which bring people to say, "You know, this is totally beyond management. And let us get somebody else to do it."

So trying to put some creditability in these laboratories by allowing them to manage what they ought to be managing is very important.

You are a researcher. You cannot do research and get your job done effectively and efficiently with the kind of micromanagement that DOE has imposed on these three major labs. And, other multipurpose labs have the same problem.

Dr. KREBS. Yes; it is not just the ten multiprogram laboratories that were reviewed by Galvin that are equally confined by the previous requirements.

COOPERATIVE RESEARCH AND DEVELOPMENT AGREEMENTS

Senator DOMENICI. I understand the Galvin report was not terribly enthused about CRADA's with the private sector and wanted to leave the laboratories doing more work—that is more energy and nuclear related work. Did you read it that way?

Dr. KREBS. I did not read it exactly as against CRADA's. What I read was that an expansive commitment to a mission for industrial competitiveness or industrial partnership was inappropriate and that the connections between the laboratories and the industry could be very effective. There are numerous examples that indicated that there were some happy customers out there, but that it would be more appropriate, if you will, if there were an approach to working with industry that brought, for want of a better word, dual benefits to the mission, whether it is the national security or the energy or the environmental mission. The report also indicated the Department should not enter into it unless there is sort of a synergy, not only for industry's needs but for the Department's needs.

Senator DOMENICI. OK. I would hope you would supply this for the record. And then I would ask my staff to please get me the answers and let me review them.

I would like you to tell us how many CRADA's are being pursued at the present time and give us a list of those and what portion of the 1996 budget request will be dedicated CRADA's and other technology transfer.

Could you also tell us—because I understand some of your research money is distributed among universities, multipurpose and

single-purpose laboratories—what portion of your budget is distributed to each of these?

Finally, what portion of your budget goes to user facilities? And who uses them? We are having difficulty getting out to the public what you do including CRADA's. That is—people are interested in how you help private sector make breakthroughs. We are not making a very good case in that area.

Dr. KREBS. Yes.

Senator DOMENICI. And I think we have strengthened the record so, at least, we can tell some people that are interested in the benefits and what the Department is doing.

[The information follows:]

TECHNOLOGY TRANSFER BREAKTHROUGHS

So far as technology breakthroughs and the quality of DOE laboratory technology in the eyes of others, DOE laboratories have received 11 percent of the 3163 R&D 100 awards since 1963 from Research and Development magazine, which exceeds the total for other Federal agencies and universities combined. Of the DOE R&D 100 award winners, about half (49 percent) have been commercialized. Some thirteen percent of these award winners used CRADAs as the means to further develop the technology for transfer and commercialization by a partner.

To date, only about 120 CRADAs have been finished, and most of these have been completed in the last year. It should also be noted that measuring the results of research and development is inherently complex and difficult; there is usually a time lag between when research is completed and when economic benefits accrue. As is appropriate for the high risk research that the government funds, one expects the R&D portfolio to yield high benefits, but many individual projects can be expected to be unsuccessful. It is also true that technical successes, both for CRADAs and for research entirely funded by industry, can result in commercial failures for reasons unrelated to the quality of the research. The DOE is implementing its Integrated Technology Transfer System, to better measure both the results of our partnership efforts and how well the partnership process is working. This includes, but is not limited to, CRADAs.

We are providing the Subcommittee Staff a copy of our draft report to the Congress "U.S. Department of Energy Annual Report on Technology Transfer" for specific examples of benefits to private companies from the Department's technology transfer activities.

ANNUAL REPORT ON TECHNOLOGY TRANSFER—FISCAL YEAR 1994

The U.S. Department of Energy (DOE) laboratories and facilities have a long history of excellence in such areas as the basic sciences, applied energy research, and weapons-related technologies. Research at these institutions has led to many important scientific discoveries and development of more efficient energy sources, new materials, and related technologies. Moreover, the Department's education, training, and outreach programs have served to increase the science and engineering capabilities of the nation as a whole.

Over time, the Department has developed world-class capabilities in the following technological areas: energy, pollution minimization and remediation, advanced materials and advanced materials processing, biotechnology, manufacturing, information and communication software, and advanced instrumentation and sensors.

If the full benefits of the Department's laboratories, facilities, and technical capabilities are to be realized, the results of its mission-oriented research and development programs must be shared with the nation. In recent years, the Department has laid the policy foundation and built the programmatic infrastructure to share its knowledge with industry through technology transfer partnerships. The National Competitiveness Technology Transfer Act (NCTTA) of 1989 (Public Law 101-189) and the Energy Policy Act of 1992 (Public Law 102-486) have firmly established technology transfer as a mission of all federal laboratories and facilities.

The NCTTA requires the Department to provide a report on "...its technology transfer program for the preceding year and its plans for conducting its technology transfer functions for the upcoming year, including plans for securing intellectual property

rights in laboratory innovations with commercial promise and plans for managing such innovations so as to benefit the competitiveness of United States industry."

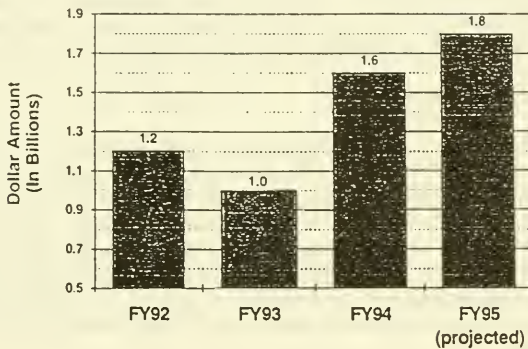
This document, presented in three sections, describes activities managed by the Department under the NCTTA during fiscal year 1994, as well as efforts managed by the Department under other related authorities such as the Federal Technology Transfer Act of 1986 (Public Law 99-502).

■ *General Overview*

The Department has a current budget of more than \$17.5 billion. It applies its expertise in four core mission areas: energy resources, national security, science and technology, and environmental quality. The Department's laboratories are home to approximately 57,000 scientists, engineers, and technicians who will perform about \$5.8 billion worth of research and development during fiscal year 1995 (excluding R&D facilities and program direction).

During fiscal year 1994, the Department allocated \$1.6 billion to its technology transfer programs. A portion of this amount is allocated to each of the Department's laboratories' and facilities' Office of Research and Technology Applications (see Figure 1: Technology Transfer Budget Data, FY92 - FY95).

Figure 1: Technology Transfer Budget Data, FY92 - FY95



The first section of this document provides a general overview of the Department's technology transfer program and activities during fiscal year 1994. Overall, the Department's progress in the last few years has been outstanding. Fiscal year 1994 is no exception. The Department has streamlined its processes, improved technology partnership planning and measurement, and increased small business partnering opportunities to help ensure that these technology partnerships maximize the benefits obtained from the Department's mission-oriented research and development activities. As a result, businesses have responded enthusiastically to forming partnerships with the Department.

■ *Partnership Success Stories*

The second section provides examples of technology transfer activities in the Department's four core mission areas: energy resources, national security, science and technology, and environmental quality. These partnership success

stories offer ample evidence that Americans are learning how to work together to secure major benefits for the nation by combining the technological, scientific, and human resources resident in the Department's national laboratories and facilities with those in industry and academia. The benefits include more and better jobs for Americans, improved productivity and global competitiveness for our technology-based industries, and a more efficient government laboratory system.

■ *Future Directions*

The last section describes directions and milestones for Department technology transfer activities in fiscal years 1995 and 1996.

TECHNOLOGY TRANSFER PROGRAM: OVERVIEW

U.S. industrial and academic organizations have many opportunities to form partnerships with the U.S. Department of Energy for the mutual advantage of those organizations, the Department, and the nation as a whole.

This section reflects the Department's progress in the technology transfer programs during fiscal year 1994. Since the Department's 1993 strategic plan, *Partnerships for Global Competitiveness*, and April 1994 strategic plan, *Fueling a Competitive Economy*, were issued, the Department has vigorously worked to streamline processes, plan for success, and reach small businesses. The Department's progress was first reflected in the September 1994 report, *Our Commitment to Change: A Year of Innovation in Technology Partnerships*, and is further documented in this report as follows:

■ *Streamlining the Process*

Although there have been few doubts about the Department's scientific and technological capabilities, there have been great concerns about the ability of the Department to work with industry. One view was that the culture in the Department's laboratories was incompatible with industry. Scientists and engineers were seen as too accustomed to working for the government to work with a new customer. There was concern that laboratory R&D was too specialized and esoteric and too focused on high performance/high priced technologies rather than the low cost/high volume technologies that industry often needs.

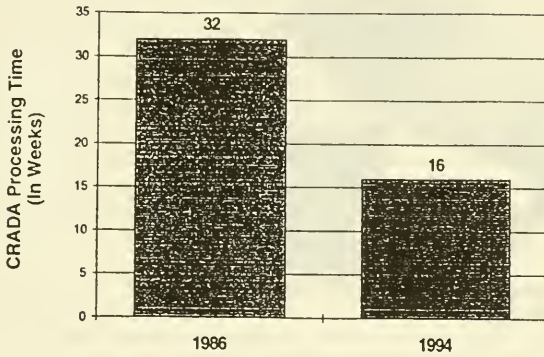
Another concern was that Departmental procedures were too cumbersome for viable partnerships. Many of the early partnerships took too long to approve, and many of the terms and conditions for agreements with the Department were unacceptable to many industrial partners. For too many companies, interacting with the Department was frustrating.

During fiscal year 1994, the Department has made great strides to improve and refine technology partnering policies, procedures, and processes. Most notable has been the Department's ability to decrease the amount of time required to enter into a partnering arrangement with the Department.

The Department shortened the cooperative research and development agreement (CRADA) processing time from approximately 32 weeks to approximately 16 weeks, halving the CRADA processing time while doubling the number of CRADAs (shown in Figure 2: CRADA Process Time). The number of partnerships with industry has increased dramatically, and many

partners are returning with additional proposals after their initial work is done.

Figure 2: CRADA Processing Time

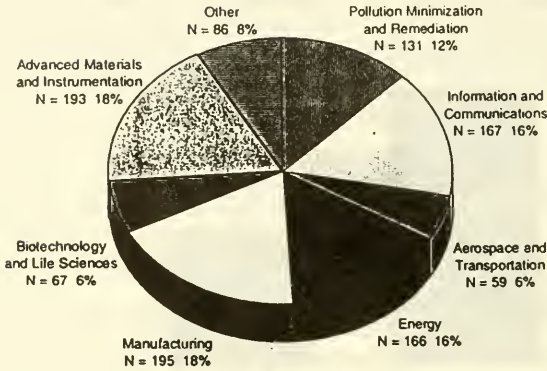


In an effort to help speed laboratory/partner agreements, two *streamlined CRADAs*, a *modular CRADA* and a *"fill-in-the-blank" CRADA*, were issued by the Department in December 1993. This has had a major impact on our partnering activities. Any interested potential partner can use the modular CRADA as a contract mechanism. This CRADA offers the Department's full range of preapproved terms and conditions, as well as criteria to be applied when negotiating CRADAs. Both CRADAs have been instrumental in reducing the amount of time it takes a partner to enter into an agreement with the Department. The "fill-in-the-blank" CRADA is even shorter and simpler, and was originally intended for the small business community, but is now available to all partners.

The 1000th CRADA was signed in August 1994—more than a year earlier than projected. Although 1,000 CRADAs constitute an important milestone, counting the number of CRADAs has not been the Department's goal, nor will it be in the future. Mutual benefits to our mission performance and our partners' businesses are paramount. The Department's industrial partners have committed over \$1.1 billion as their share of these partnerships, an indication that industry expects substantial benefits from them. The Department's current focus, while the Department continues to make the capabilities of the DOE complex easier to access, will be to ensure that it maximizes the value of its mission-oriented research and development to the nation through these partnerships. The Department and potential partners must continue to work closely together to define technology needs and combine efforts in areas that take advantage of the resources of both parties and have the potential to offer the highest possible value to the nation.

Advanced manufacturing and materials account for about one quarter of all CRADAs; information and communications account for about an eighth of the total; and energy, environment, and life sciences account for about a third (shown in Figure 3: DOE CRADA Distribution by Technology Category).

Figure 3: DOE CRADA Distribution by Technology Category*
(N = 1,064 as of 9/30/94)



[Percentages may not equal 100% due to rounding. CRADAs are classified by primary category; however, many CRADAs fall into more than one category.]

A *block funding plan for CRADAs* was prepared and is operating at some of the Department's multiprogram laboratories. For fiscal year 1995, the Office of Energy Research (ER) and the Office of Defense Programs (DP) will block-fund approximately \$150 million. ER has allocated 97% of its \$57 million Laboratory Technology Transfer budget and DP has allocated almost 50% of a budget of slightly over \$200 million for block funding.

In addition to CRADAs, the use of other mechanisms including *patent licensing, personnel exchanges, and reimbursable work for other organizations* has also increased. When all technology transfer mechanisms are included, more than 3,000 partnerships have been developed over the last three fiscal years. Table 1 provides data on patents and licensing.

Table 1: Patent and Licensing Data, FY92 - FY95*

	New U.S. Patent Applications	Licenses Awarded	Licensing Income (\$000)	New Companies Formed
FY92	432	215	\$2,369	5
FY93	497	408	\$2,709	9
FY94	569	507	\$2,915	19
FY95	668	638	\$3,455	34

*Fiscal year 1995 is projected.

A Departmental *Technology Transfer Process Workshop* was held in December 1993 and was attended by more than 200 DOE federal, laboratory, and facility technology transfer professionals. The workshop provided a forum for technology transfer professionals throughout the Department to discuss technology transfer issues, developments, training, legislation, and new approaches within all Department laboratories and facilities. Emerging from the four-day discussion were a number of action items to help improve the Department's technology transfer processes.

The Department offered *technology transfer training* for Departmental staff throughout fiscal year 1994. Through the Technology Transfer General Awareness Course, which targeted research and development professionals and managers, 325 federal and laboratory/facility staff received training during fiscal year 1994. In June 1994, two new technology transfer training courses made their debut: Roles and Responsibilities of the Technology Transfer Professional, and Challenges in Technology Transfer.

The course titled "Roles and Responsibilities of the Technology Transfer Professional" provides extensive instruction to the technology transfer professional in performing technology transfer roles and responsibilities. The course was designed for persons who have recently assumed roles and responsibilities in technology transfer and have an understanding of the Department's organizational structure, general policies and procedures, and regulatory framework. The course covers topics such as assessing technology transfer, planning for technology transfer, implementing mechanisms, and evaluating the effectiveness of technology transfer.

The second course, "Challenges in Technology Transfer," was designed to identify and clarify key topics and issues in the Department's technology transfer program. It provides the relevant Departmental guidance and an in-depth examination of topics such as implementation of the modular and "fill-in-the-blank" CRADAs, U.S. competitiveness, product liability, and conflict of interest. This one-day course was designed for technology transfer professionals who are experienced in managing and implementing technology transfer programs and projects and are familiar with the DOE system.

In addition, a general employee training technology transfer video was designed to introduce new employees to technology transfer within the Department. This short video acquaints the viewer with the importance of technology transfer and underscores the benefits of partnering with industry.

Several *internal publications* were developed to enhance communication among the Department's technology transfer professionals. These include:

- The "Technology Transfer Implementation Handbook" is an in-house document designed for Department federal and laboratory and facility personnel. Its purpose is to encourage participation in technology transfer activities and to provide the knowledge needed to facilitate and accelerate technology transfer activities. It includes topics such as responsibilities under partnership agreements and under the law, the technology transfer process, technology transfer mechanisms, intellectual property, and components of the Department.

- "Who's Who in Technology Transfer" was developed to facilitate networking and communicating among Department staff involved in technology transfer activities. The directory lists technology transfer contacts in headquarters offices, operations offices, laboratories, and facilities.

The Department continues to actively participate in the legislatively authorized *Federal Laboratory Consortium (FLC)*. Employees at Department laboratories and facilities received 14 of the 27 FLC Excellence for Technology Transfer awards. The award recognizes creativity and initiative, as well as tangible benefits to industry or government and involvement in all phases of the transfer.

DOE-developed technologies have received more *Federal Laboratory Consortium* and *R&D 100 Awards* than any other single entity, as well as recognition from other award-granting institutions such as the Industrial Research Institute. Department laboratories and facilities received 28 1994 R&D 100 awards (shown in Table 2: DOE Winners of the 1994 R&D 100 Awards). *R&D Magazine* began its annual R&D 100 Award program in 1963 to recognize the 100 most significant new technologies, products, processes, and materials developed throughout the world during the previous year. Fourteen of DOE's 1994 awards represent partnerships with nonfederal entities including sixteen industry organizations; three academic institutions, including Moscow State University; and one state organization.

Table 2: DOE Winners of the 1994 R&D 100 Awards

Laboratory/Facility	Number of Awards
Argonne National Laboratory	3
Lawrence Livermore National Laboratory	6
Los Alamos National Laboratory	6
Morgantown Energy Technology Center	1
National Renewable Energy Laboratory	1
Oak Ridge National Laboratory	2
Pacific Northwest Laboratories	1
Sandia National Laboratories	7
U.S. Department of Energy	2
Total Number of Awards	28
Total Number of DOE Award Winners	29

During fiscal year 1994, the Department has increased *outreach efforts* through participation in trade shows and exhibitions, industry workshops, conferences, and publications. The Department participated in 11 events, reaching close to 150,000 potential partners. These events included:

- Society of Automotive Engineers International Conference and Exposition
- National Indian Business Conference
- Federal Laboratory Consortium Spring Exposition
- Historically Black Colleges and Universities Conference
- American Ceramic Society Annual Meeting
- NIST National Conference on Manufacturing
- Argonne National Laboratory Open House
- National Association of State Energy Officials Annual Conference
- R&D 100 Award Exposition
- Bobbin Show/American Apparel Manufacturers Association
- NASA Technology 2004 Exposition

In addition, the fourth Department of Energy Technology Transfer Communications Conference was held in August 1994. The conference focused on identifying and sharing ways to strengthen technology transfer and communication activities and included senior technology transfer and public affairs officials from the Department's headquarters and field organizations, laboratories, and facilities.

Also, the Department developed a guidebook, *Partners in Technology*, designed for U.S.-based companies that are interested in working with DOE. Major sections of this publication outline how to gain access to technologies and how to establish a partnership with a DOE laboratory or facility.

The Department's Office of Scientific and Technical Information within the Office of Science Education and Technical Information supports DOE's technology transfer goal to transfer science and technology to U.S. industry through its base of scientific and technical information. Over three million copies of new worldwide scientific and technical information were collected and distributed, including the following specific categories of information:

- Approximately 20,000 newly published documents reporting DOE research results
- 89,000 summaries of foreign research and development
- 491 DOE patent announcements
- 197 DOE patent applications
- 844 copies of DOE and Nuclear Regulatory Commission software
- 24 software packages copyrighted for commercialization

In addition, over 14,000 connections to the DOE Home Page were made by Internet users. The Department's Home Page was developed to provide unified Internet access to a variety of departmental information through Mosaic, including an Industrial Competitiveness home page.

■ *Planning for Success*

In fiscal year 1994, the Department committed itself to a new high-level team to achieve consistent policies and to expedite problem solving in technology partnerships. In June 1994, the Secretary of Energy announced the creation of the *Office of the Deputy Under Secretary for Technology Partnerships*. This office will help develop technology partnering plans that are coordinated throughout the Department, with the private sector, and with other Federal agencies and the White House Office of Science and Technology Policy. The new office will manage Department-wide strategic planning, coordination, policy development, and issue resolution functions. The office will play an

essential role in coordinating partnerships between DOE science and technology programs and industry, academia, and state/local government. The office is tasked with ensuring that DOE's technology partnerships get the most benefit from taxpayer dollars and with finding ways to measure the performance of those partnerships.

The Department completed its strategic plan, *Fueling a Competitive Economy*, and has increased cooperative activities with industry, primarily through *major multiyear technology partnerships*. One of those, the American Textile Partnership (AMTEX™), is a multimillion dollar partnership between eight national laboratories (Argonne, Brookhaven, Lawrence Berkeley, Lawrence Livermore, Los Alamos, Oak Ridge, Pacific Northwest, and Sandia) and AMTEX, the American Textile Consortium, a consortium of five research organizations in the textile industry. Working together with cost-shared resources that may approach \$200 million, the participants will research: improved materials and processes, demand-activated manufacturing, environmental quality and waste minimization, energy efficiency, and automation. To reverse a trend that has cost this nation more than half-a-million textile jobs during the past 10 years, AMTEX predicts that the technological innovations expected as a result of this CRADA will save 350,000 jobs over the next five years and create an additional 200,000 new and better-paying jobs five years thereafter.

Similarly, the Partnership for A New Generation of Vehicles (PNGV) is an initiative between seven federal agencies, including the Department of Energy, and the "Big Three" auto manufacturers and has as one of its major goals to develop a new generation of fuel-efficient vehicles that is three times more energy-efficient than today's cars. The partnership is chaired by the Department of Commerce, but the majority of the government's resources are provided by the Department of Energy. It involves major DOE national laboratories (Argonne, Brookhaven, Idaho, Lawrence Livermore, Los Alamos, Oak Ridge, Sandia, Pacific Northwest, and the Centers for Manufacturing Technology at the Y-12 Site in Oak Ridge) and auto industry research consortia (e.g., the Automotive Composites Consortium, the Low Emissions Technologies R&D Partnership, and the United States Automotive Material Partnership) operating under the auspices of the United States Council for Automotive Research (USCAR). With a three-year DOE budget of over \$600 million, the project includes research on manufacturing, power trains, emissions technology, hybrid vehicles, fuel cells, and materials. In December 1993, a master CRADA was signed between the national laboratories and the Big Three auto manufacturers to make it easier for firms to work with the laboratories on projects under the PNGV by standardizing terms and conditions used in their joint projects.

The Department signed a Memorandum of Understanding with the United States Industry Coalition, Inc. (USIC) in connection with the Industrial Partnering Program with the Department's multiprogram laboratories and the New Independent States (NIS) of the Former Soviet Union. The program is authorized by the Foreign Operations Appropriations Act of 1994 and is designed to stabilize the technology base of the cooperating NIS as each strives to convert defense industries to civilian applications. The actual cooperation will use CRADAs between the Department's laboratories and member companies of the USIC with the laboratories subcontracting some of their CRADA work to institutes in the NIS.

The Department has also committed itself to *cooperative planning with other agencies*. The Department has more than a dozen significant cooperative projects with the Department of Defense in the area of electronics alone. Other agencies include: the Departments of Commerce, Interior, Transportation, and Agriculture; National Aeronautics and Space Administration; and U.S. Environmental Protection Agency.

For example, more than 100 representatives of DOE and the U.S. Department of Agriculture met in April 1994 to discuss how technologies and skills developed for their core missions can be shared and ultimately commercialized. Other examples include:

- The Department's Office of Scientific and Technical Information implemented a Memorandum of Understanding with the Department of Commerce's Patent and Trademark Office for gaining comprehensive coverage of Department of Energy and Department of Energy-sponsored patents.
- The transfer of federal software technology and scientific and technical information to industry was maximized through a cooperative arrangement with the National Aeronautics and Space Administration and the National Technology Transfer Center.
- DOE is discussing a Memorandum of Understanding with the Department of Commerce that will make the resources of DOE's laboratories and facilities an integral part of the Manufacturing Extension Program run by the National Institute of Standards and Technology.

During fiscal year 1994, the Secretary of Energy appointed senior private-sector executives to the *Secretary of Energy Advisory Board (SEAB)* to provide independent reviews of the Department's partnership activities. During the year, a major SEAB effort was underway through the Task Force on Alternative Futures of the National Laboratories under the leadership of former Motorola Chairman Bob Galvin.

The Department is committed to working with its customers to develop and implement a system for *measuring performance* in its partnership programs. DOE has developed such a system and is implementing it. It includes a database to track performance measures and a survey of the Department's customers that will establish a baseline of the customers' satisfaction with the Department's technology partnership programs.

Executive Order 12862, "Setting Customer Satisfaction Standards," requires each federal agency, as a part of the National Performance Review, to establish a baseline of customer satisfaction with its external customers. In an effort to accurately establish a baseline customer satisfaction measurement of the Department's technology transfer customers, telephone interviews were conducted with selected partners to determine the performance of Departmental programs, laboratories, and facilities and to determine the level of customer satisfaction with the service received.

The customer satisfaction survey will provide information about what DOE's customers think about the services and products it delivers. A pilot survey was conducted in July 1994. A report about this survey was sent to the White House and other interested parties in September 1994. The Department plans to institutionalize customer satisfaction surveys at DOE and will use the results to fine tune its technology transfer programs and processes.

Results of the survey conducted in August 1994 indicate that the Department's technology transfer customers are generally satisfied with DOE's performance but have identified areas for improvement (shown in Figure 4: Did the Products and Services of DOE Exceed, Meet, Nearly Meet, or Miss Your Requirements? and Figure 5: Rate Your Satisfaction with Working with DOE Staff).

Figure 4: Did the Products and Services of DOE Exceed, Meet, Nearly Meet, or Miss Your Requirements? (N = 147)

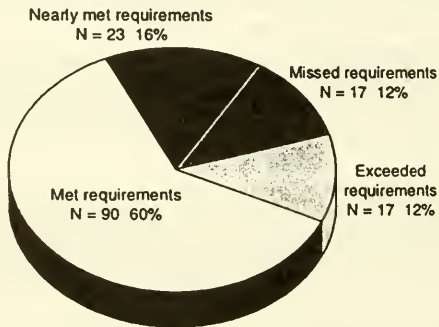
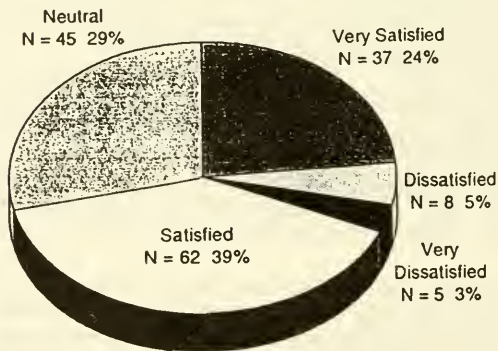


Figure 5: Rate Your Overall Satisfaction with Working with DOE Staff (N = 147)



The Department has also held regular *Regional and National Partners Feedback Conferences* that are attended by hundreds of its partners. The

comments and suggestions received have resulted in many improvements in DOE programs.

In response to a suggestion from the previous Process Workshops, regional feedback meetings were held to provide a forum for partners working with the Department's laboratories and facilities in order to discuss what has worked well and what needs further attention in the Department's technology transfer processes. Completed in early fiscal year 1994, ten field organizations hosted six regional meetings. The six regional meetings ranged in size from 65 to 125 attendees and included representatives from approximately 250 past, current, and potential partner organizations, in addition to Department personnel.

Following the six regional meetings, over 250 participants attended the National DOE Partners Feedback Conference that was held in November 1993. Over 65% of those attending were current and potential industry partners, and consisted of representatives from large companies as well as small businesses. In addition, several participants represented not-for-profit agencies and universities. The purpose of the conference was to identify changes needed and to suggest improvements for the Department's technology transfer processes.

The Integrated Technology Transfer System (ITTS) database will track technology transfer events within the Department. It is currently being tested at five Departmental laboratories and two Departmental operations offices. A fully operational version of this database will be at all Departmental laboratories, facilities, and offices by the end of calendar year 1995. The database, which is being designed and managed by the Department's Office of Scientific and Technical Information, will allow the Department to determine with great precision how long it takes to enter into a partnering agreement with the Department, whether the agreement achieved its technical goals, and the potential benefits of the agreement for the Department's missions, its partners and the nation's economy.

■ *Reaching Small Business*

The Department recognizes the value of small business in the creation of jobs and economic growth and is committed to providing opportunities for these businesses to partner with Department's laboratories and facilities. Regional coordinators have been established to provide small businesses with additional information, and several programs have been developed within the Department to assist small businesses in technology partnering.

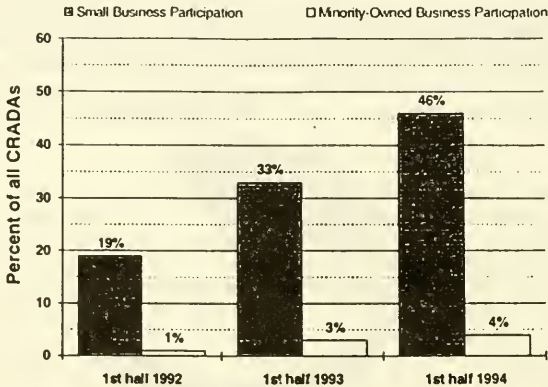
To increase awareness of partnering opportunities in the small business community, the Department issued a small business brochure; developed an exhibit for display at trade shows; and participated in the Small Business Technology Transfer Pilot Program.

A new, simplified "*fill-in-the-blank*" CRADA, accompanied by small business guidelines was distributed to encourage more participation by small businesses in the technology transfer process. The "*fill-in-the-blank*" CRADA is a shortened and simplified form for use primarily but not solely between the Department and small businesses. It helps alleviate the delay associated with lengthy CRADA negotiations. This five-page document makes it much easier for small businesses to work with the Department. It was released in January

1994 and is widely used. Participation by small business in the Department's activities has increased from 25% of the total in September 1993 to over 37% in September 1994.

The Department has also more than doubled its percentage of partnerships with minority-owned enterprises. The Department is casting a wide net to include audiences it has not reached sufficiently before, such as African-American, Native American Indian, Hispanic, Asian and women-owned businesses.

Figure 6: Growth of Small and Minority-Owned Businesses' Participation in DOE CRADAs



In addition to CRADAs, there are several other technology partnering mechanisms that are particularly appropriate for small business, such as *technical assistance, use of facilities, and technical personnel exchanges*. These mechanisms provide opportunities that are popular with small businesses because of the larger short-term impact, and they allow the Department to reach a large number of firms quickly and efficiently.

Technical assistance can take a variety of forms, although typically the Department's facilities respond to specific needs of small businesses by providing technical consultation and information. Technical assistance may be provided by a one-on-one relationship directly with a small business or through a small business association or consortium or through the use of an intermediary whose purpose is to assist with the technology transfer process. Technical assistance activities do not require matching contributions by the small business and typically expend approximately \$5K in Department funds per request. Over the last year, an additional \$8 million have been added to technical assistance for small businesses, provided largely through the Department's laboratories and facilities.

Intermediaries are organizations, such as state and local governments, universities and community colleges, not-for-profit economic development organizations, trade associations, small business development centers, and business incubators, that provide outreach to and needs identification for small businesses. They assist in linking small businesses and Department facilities

by prequalifying requests for technical assistance and partnerships, forecasting and analyzing the requirements of small businesses, and providing periodic feedback and evaluation of the effectiveness of program results and opportunities for improvement.

Facilities and equipment at the Department's many locations represent a significant resource that can be utilized by small businesses for hands-on training to acquire special skills, for building one-of-a-kind prototype products, or for use in developing a special technology or process.

In fiscal year 1994, the Department developed and distributed a brochure aimed at small businesses. The brochure, titled "Partnering for Growth: Opportunities for Small Business to Work with the Department of Energy," provides a list of ongoing programs available to small businesses, as well as a list of regional coordinators within DOE who are available to assist small businesses in partnering with the Department.

Small business outreach activities also included participating in and exhibiting at trade shows and developing publications that help partners understand how they can work with the Department. These outreach efforts included attendance at trade shows specifically aimed for minority participation. For example, in 1994, the Department exhibited at the Second National Indian Business Conference and Expo in New Mexico, as well as at a meeting of the historically black colleges and universities in Norfolk, Virginia.

In fiscal year 1994, the Department issued the 1994 *Small Business Innovation Research (SBIR)* solicitation. The Department received a total of 2,276 grant applications and made 212 Phase I awards, each with a maximum award amount of \$75,000. Another 156 applications were received for Phase II grants and 63 awards were made at a maximum of \$600,000 per project. For example, Advanced Technology Materials, Inc. (ATMI) used DOE SBIR funding to develop a system that removes moisture and contaminants in chemical vapor deposition, a critical step in both semiconductor and solar cell processing. Total sales have exceeded \$10 million, and ATMI has obtained more than \$7 million from the private sector for further development and commercialization. Since the company began this DOE project, its first SBIR award, it has grown from 4 to 80 employees. In fiscal year 1994, ATMI had an initial public offering of approximately \$11 million.

The Department issued its first solicitation for the *Small Business Technology Transfer Program*, where a portion of an agency's R&D budget is reserved for awards to small businesses in collaboration with research institutions, such as universities or DOE national laboratories.

The DOE SBIR program has the unique feature of providing for an optional early submission and rapid evaluation of Phase II applications, so that Phase II can be started without a gap in funding. A funding gap between Phases I and II can cause serious cash flow problems for small firms and is most difficult for businesses that are either new or very small. In the first year of Phase II awards (1984), a system was devised and implemented that allowed Phase I awardees who felt they were ready to submit their Phase II applications before their Phase I grants ended, to do so. For each of the twelve years in which Phase II awards have been made, such grantees who were chosen for Phase II

funding were able to begin their projects without an interruption in funding. Since 1984, about 40 percent of the Phase II awardees have had continuous funding between Phases I and II.

Because so many small companies lack the business skills necessary for rapid commercialization of their technologies, DOE has instituted a special training project, supported by non-SBIR funds. For the past five years, successful Phase II awardees have been given individual assistance in developing a business plan and in preparing materials describing a business opportunity that could be presented to potential investors. The culmination of the project was a series of presentations by the SBIR awardees to the sponsors, which included representatives from large corporations and venture capital firms. As a result of participation in the 1991 project, the SBIR companies have already received more than \$14 million for commercialization of their SBIR research, with a projected royalty stream from option agreements of an additional \$24 million over the next three to five years. About 43% of the firms that completed the project have received further funding for their work.

PARTNERSHIP SUCCESS STORIES

The document *Technology Transfer 1994* provides descriptions of transfer activities managed by DOE programs and laboratories in its four core mission areas: national security, energy resources, science and technology, and environmental quality. Some of these activities are briefly described in this section to reveal the scope of Departmental activities. Nothing in this section of the report should be considered a comprehensive reflection of all Departmental activities.

■ *National Security*

LabVIEW

A CRADA between Los Alamos National Laboratory (LANL) and National Instruments, Inc. has resulted in the release of an enhanced version of LabVIEW, a cost-effective, high-performance software for data acquisition, analysis, display, and instrument control. The software meets a major need for all experimentalists in the physical and life sciences, engineers, and industrial process control experts. LANL, through its defense mission, has broad historical expertise in sensors and signal acquisition, numerical analysis and signal processing, computer control of remote instruments, and display of processed scientific data. National Instruments is the leading national supplier of hardware and software for general purpose computer/instrument integration.

This cooperative agreement presents valuable dual use benefits to DOE, and a major research and engineering tool has been made available to potential customers throughout the world through National Instruments' commercial sales of LabVIEW.

Ground-Penetrating Radar

In fulfillment of its defense mission, the Department of Energy's Special Technology Laboratory (STL) has developed a ground-penetrating radar (GPR) that, when combined with software developed by Raton Technology, a technology transfer partner located in Raton, New Mexico, has shown the

ability to precisely define the thickness of coal seams. Several western coal companies have indicated a strong interest in using this technology to control continuous mining machines in order to optimize the amount of high quality coal that can be removed from the mines. This interest has been expressed in letters to both the Department of Energy and Congress.

Although GPR was developed at a DOE laboratory, application of this technology to aid in the removal of coal from the ground is outside the Department's purview. It corresponds to an active research project at the Bureau of Mines, and consequently, a demonstration of the GPR's effectiveness was conducted at the Bureau's facilities in Pittsburgh at DOE's request. The testing was conducted on "coalcrete," a laboratory simulation of a coal seam, as well as in a field experiment at a test mine located under the laboratory. A summary report on the tests is being prepared, and DOE will facilitate resulting technology transfer partnerships.

Micropower Ultra-Wideband Radar Motion Sensing

Micropower Ultra-Wideband Radar Motion Sensing is a new model in radar technology developed exclusively at the Lawrence Livermore National Laboratory. Developed by the Lab's Laser Fusion Program, the laser performs the same tasks for only \$10 to \$15 in off-the-shelf components as equipment that today costs \$40,000.

The key to the radar invention is a patented receiver that can detect echoes of rapid, wide-band radar pulses (about one million per second) reflected from objects. The technology sends out electrical pulses as short as 50 trillionths of a second generated by a computer chip, and then receives back the radar echoes.

Currently about two dozen licenses of the technology are pending in such areas as home and industrial security, energy conservation, appliance safety, fluid-level sensing and factory automation controls. It is anticipated the technology will be licensed in as many as 40 to 50 separate areas and could produce several million dollars annually in royalties.

The licenses stem from a technology that was cited as one of the top 100 inventions for 1993 by *R&D Magazine*. *Popular Science Magazine* in November of 1994 awarded the technology the "Best of What's New" award as one of the year's 100 greatest achievements in science and technology.

■ *Energy Resources*

High Performance Storage System Project

The High Performance Storage System Project is a major collaboration of U.S. storage vendors including IBM, Zitel, Ampex, Maximum Strategy, DISCOS, and NSC with several DOE national laboratories to advance the state of the art in high performance data storage systems capable of storing terabytes of data. This is a critical issue for high performance computing, storage of massive amounts of experimental data, and a number of commercial applications. This collaboration will help National Energy Research Supercomputer Center (NERSC) explore better ways to serve the data storage needs of its users and will help the participating companies to develop new mass storage products.

Lawrence Berkeley Laboratory Cooperative Research and Development Agreement for Early Detection of Breast Cancer

In a development growing out of its basic research mission, the Lawrence Berkeley Laboratory has signed a one-year CRADA with Wang NMR, Inc., a small business located in Livermore, California, that may lead to earlier diagnosis of breast cancer. Breast cancer, the most common cancer in women, is second only to lung cancer in terms of mortality. Early detection with X-ray mammography, the current screening technique of choice, remains a problem. In particular, X-ray methods often fail to pick up small tumors in the breast or to identify tumors through dense tissue of larger breasts. Magnetic resonance imaging, also known as nuclear magnetic resonance, has proven to be effective in overcoming these obstacles. However, the ability of magnetic resonance remains a problem. The aim of this collaborative endeavor is to develop technology to better zero in on tumors. During a magnetic resonance imaging session, a patient typically reclines on a table encircled by a large device that delivers a strong magnetic field. The magnet excites the molecules in the tissue to release energy that, with the aid of a computer, is reconstructed into an image that varies in color as a function of the tissue density. The technology now being developed will enable physicians to perform needle biopsies of detected tumors while the patient is being imaged.

Thomas F. Budinger, M.D., head of Lawrence Berkeley Laboratory's Center for Functional Imaging, said of the collaboration, "The sensitivity for detecting tumors by magnetic resonance imaging is so great that frequently small tissue abnormalities, which might not be tumors, often appear in the image. If you have a unique detection technique, you also have to have a method for confirming what it is that you have really detected. A method that allows for the detection of small tumors and needle biopsy of the suspect tumor while the patient is still in the magnet would be the most significant advance in breast cancer medicine of this decade. The technology that combines effective patient care with state-of-the-art instrumentation is exactly where the national laboratories can make contributions to improving the quality of health care while lowering the financial burden."

In the scope of the agreement, Lawrence Berkeley Laboratory will design the component systems for the magnetic resonance imaging and biopsy system while Wang NMR, Inc. will fabricate the prototypes, including the device for in-magnet biopsy of breast tumors. These prototypes will then be tested in breast tissue phantoms at Lawrence Berkeley Laboratory's Center for Functional Imaging. Dr. Mark Roos, faculty scientist in the Center, will lead the effort at Lawrence Berkeley Laboratory. Wang NMR, Inc. is a manufacturer of superconducting magnets with experience in the design of special purpose magnets for magnetic resonance, fusion research, and other applications.

Breaking the Thin-Film Barrier

The race to cut solar electricity costs is gaining momentum, thanks to a breakthrough in photovoltaic (PV) technology at the National Renewable Energy Laboratory (NREL). Laboratory researchers set a world record of 16.4% efficiency with an innovative solar cell made of copper indium gallium diselenide (CIGS). Scientists developed the cell using a new fabrication

approach that reduces manufacturing costs and increases conversion efficiency. *Popular Science Magazine* ranked this research among the top 100 products and achievements of 1993 and presented NREL with a "Best of What's New" award.

Commercially available PV devices are cost effective for terrestrial applications ranging from calculators to stand-alone power systems. But costs must come down before PV can find widespread use among electric utilities. One way to reduce costs is to use very thin films of semiconductor material rather than conventional wafers or slices. The thin films must deliver the same sunlight-to-electricity conversion efficiency achieved with wafer-based cells. With NREL's new fabrication method, the amount of semiconductor elements is graded throughout the thickness of the thin film, allowing the solar cell's light-capturing ability to be tailored for higher efficiency.

The CIGS cells are the first thin-film cells of any material ever to surpass an efficiency of 16%. Rapid progress in CIGS technology has moved the world record from Boeing (13.7%, July 1992) to EuroCIS (14.9%, January 1993) to NREL (16.4%, January 1994) in less than 2 years.

NREL and Martin Marietta Technologies, Inc., of Denver, Colorado, have implemented a cooperative research and development agreement that combines Martin Marietta's manufacturing experience with NREL's fabrication approach. Partnership results should lead to scale-up activities and commercialization of this technology. The Laboratory is also sharing its fabrication insight with major U.S. companies that are developing copper indium diselenide compounds and alloys.

The U.S. Department of Energy and NREL expect the novel approach to help foster rapid progress toward commercializing thin-film PV products. This technology will also help advance PV from a power source for specialty applications to a cost-effective, basic source of electricity.

■ *Science and Technology*

High Efficiency Lighting

A new, highly efficient light source has been developed by Fusion Lighting, a small company in Rockville, Md., with assistance from Lawrence Berkeley Laboratory. This new light source has been installed in the plaza of the Forrestal Building and in the large Space Hall of the Smithsonian's National Air and Space Museum. The lamp, which uses sulfur gas that is excited by microwave energy, generates an extremely bright and white light that closely matches the properties of sunlight. A light pipe collects focused light from the lamp and distributes it evenly over large areas. The lamp requires less than one-tenth the electricity required by a conventional lamp to produce an equivalent light output. Additional advantages are that it contains no mercury, which presents an environmental problem in the disposal of other high-intensity lamps; it has no electrodes to limit its operating lifetime, and it produces less ultraviolet light. The Environmental Protection Agency (EPA) and NASA are also contributing to the development, along with 3M Corporation, which makes the reflective film used in the light pipe. A front-page article in the Oct. 21, 1994 *Washington Post* described the DOE and Smithsonian demonstrations.

Perfluorocarbon Tracer Technology

The Office of Energy Research at the Department of Energy is supporting a CRADA between Brookhaven National Laboratory and a small Long Island Company, Perfect Sense, Inc. The CRADA objective is to apply a PFT tracer technology developed at Brookhaven to commercial development of an on-line system for verification of ventilation integrity in critical-care hospital isolation wards and related facilities. Currently, there are no real-time methods that can be used to determine whether airflow from specially constructed hospital isolation rooms is being ducted out of the hospital as it should be, or is re-entering other areas of the hospital by virtue of spurious airflows. Preliminary testing has shown the PFT tracer technology to be very effective in this application. Continued testing of the monitoring technology is taking place at University Hospital at the State University of New York - Stony Brook and at Bronx-Lebanon Hospital Center, a New York designed AIDS Center which handled 125 inpatients with active TB in 1993.

"WS Gopher" Software System

Idaho National Engineering Laboratory has licensed WS Gopher, a software system first developed at the INEL, to Firefox, Inc., a San Jose, California subsidiary of Firefox Communications, Ltd. The agreement promises the largest royalty stream of any licensing that INEL has ever had.

WS Gopher, developed at the request of the Department of Energy's Office of Occupational Safety, is a menu-driven program that allows personal computer users to seek and download information from the Internet, a world-wide computer network system.

Firefox Communications, Ltd. provides custom computing services and is an international distributor of software development systems. The company intends to package the WS Gopher software with other products for international sale to Internet users. INEL expects that royalty income will exceed \$100,000 in the first year.

■ *Environmental Quality*

Clean Coal Technology

A small business, Custom Coals licensed the Pittsburgh Energy Technology's Micro-Mag Process to complement its own patented technologies for cleaning fine coal. Custom Coals is using its suite of technologies in commercializing a number of products that will enable coal to continue to be used by utilities yet still be in compliance with the Clean Air Act: Carefree Coal™, Self-Scrubbing Coal™, and Dry Scrubbing Coal™. Custom Coals is building plants in Somerset, Pa., (under the Clean Coal Program) as well as overseas in Poland and China. The company has increased from 10 employees to 14 this year, and will continue to grow with the addition of construction jobs and operating personnel for the Somerset plant when it is completed in the summer of 1995.

Thermally Activated Heat Pump

Oak Ridge National Laboratory collaboration over several years with Phillips Engineering, a small business in St. Joseph, Michigan, has led to the

development of a new type of thermally activated heat pump for residential applications. The technology has been licensed by Carrier Corporation, the world's largest manufacturer of heating and air-conditioning equipment. The Gas Research Institute and the American Gas Cooling Center are also partners in the work. Using natural gas to drive an absorption cycle, the system uses half as much energy as conventional oil and gas furnaces and does not require ozone-depleting refrigerants. The technology will be introduced commercially in 1997, with a potential market of more than 40 million homes and businesses.

Medical Advances from Coal Science - The Electromedics Project

Some of the most remarkable advances in cardiovascular medicine in recent years have developed as spinoffs from the Department of Energy's coal science program. In a current project, the Department's Pittsburgh Energy Technology Center is using its state-of-the-art flow analysis laboratory to assist Electromedics, Inc., a high-technology medical services company, in the development of an alternative to traditional blood transfusions during surgery.

As part of the Electromedics CRADA, scientists at the Pittsburgh coal center are using unique, patented laser-imaging tools to study the flow of blood cells through the company's AT1000 autotransfusion system. The autotransfusion device cleans the blood lost by a patient during surgery and returns it to the patient's body. The risk of complications is greatly reduced when a patient is able to use his or her own blood rather than donated blood. The laser-imaging system, developed to study the flow of tiny coal particles in an oil or water slurry, offers much better resolution than other medical imaging devices. Using this imaging system and the expertise of government coal scientists, Electromedics will be able to improve the performance of the AT1000 system, potentially benefiting hundreds of thousands of patients. Over the life of the project, the federal share will probably be about \$30,000; the private contribution to the CRADA will likely be in excess of \$300,000.

THE NEXT STEPS FOR FISCAL YEARS 1995 AND 1996

■ *Promoting Dual Benefits*

- Emphasize technology partnerships that benefit DOE missions.
- Maximize Departmental return on research investment through planned approaches toward industry participation.
 - Identify technologies and industry associations
 - Develop roadmaps

■ *Streamlining the Technology Transfer Process*

- Review terms and conditions of technology transfer agreements.

In fiscal year 1995, this includes updating and publication in the Federal Register of the Department's patent waiver regulations that will set forth procedures and conditions to obtain a waiver of the government's title right to covered inventions. Incorporation will be in Title 10 of the *Code of Federal Regulations* to provide ready access by users.

- Review operations/field office review and approval processes.
- Delegate more authority to laboratory directors/facility managers.

The Department pledged to delegate authority to the directors of Departmental laboratories to directly execute CRADAs that involve less than \$500,000 per year in federal funds and conform to certain guidelines. The necessary legislative authority is pending and the Department will support its passage.

- Remove operational barriers.

■ *Planning for Success*

- Determine the full extent of resources available for partnerships and determine mission alignment/portfolio balance.
 - Explore multiagency and interagency partnership opportunities
 - Establish strategy and selection criteria for major partnerships
 - Establish departmental expectations for selection of other partnerships
 - Develop and implement a focused outreach strategy based on clear expectations of mission-driven partnership opportunities
- Review program office, operations office, and laboratory/facility institutional plans for alignment with industrial competitiveness opportunities.
- Enhance the performance measurement process.

In fiscal year 1995, the Integrated Technology Transfer System will be fully implemented so that Department-wide metrics on seven types of technology transfer mechanisms can be evaluated and reported.

- Improve understanding of commercialization impacts.
- Measure and reward behavior.

■ *Reaching Small Business*

- Review and augment "fill-in-the-blank" CRADA to increase flexibility.
- Establish relationships with regional/state/local resources to foster the success of small business partnerships.
- Expand the Department's participation in workshops to provide basic partnership information to small and disadvantaged businesses.
- Provide one-stop information/referral resources.
- Identify sources of funding to expand services to small businesses within framework of DOE fairness of opportunity policy and criteria.

- Work more closely with other federal agencies (Small Business Association (SBA), National Institute for Science and Technology (NIST), etc.) to leverage both outreach and program resources.
- Seek to provide policy and process consistency on Small Business Innovation Research and Small Business Technology Transfer program between DOE and other agencies.

■ *Other Challenges*

- Increase utilization of DOE resources.
- Rethink management and operation contractor incentives and federal employee incentives.
- Reward "assists" as well as individual scoring.
- Explore ways to achieve the "one DOE" that the customer needs to see.
- Rethink the role of operations/field offices.
- Explore ways to achieve an integrated approach to intellectual property management and disposition.

BASIC ENERGY SCIENCES
COLLEGES/UNIVERSITIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>
AKRON UNIV OF	\$ 197
ALABAMA UNIV OF	295
ALASKA UNIV OF	113
ALFRED UNIV	231
ARIZONA STATE UNIV	1,210
ARIZONA UNIV OF	1,381
AUBURN UNIV	77
BATELLE MEMORIAL INST	93
BOSTON COLLEGE	197
BOSTON UNIV	321
BOYCE THOMPSON INST	84
BRANDEIS UNIV	268
BRIGHAM YOUNG UNIV	139
BROWN UNIV	629
CALIF STATE UNIV	61
CALIF UNIV OF BERKELEY	2,170
CALIF UNIV OF DAVIS	569
CALIF UNIV OF IRVINE	522
CALIF UNIV OF LOS ANGELES	1,334
CALIF UNIV OF SAN DIEGO	1,209
CALIF UNIV OF SANTA BARBARA	1,139
CALIF UNIV OF SANTA CRUZ	184

BASIC ENERGY SCIENCES
 COLLEGES/UNIVERSITIES
 B/A
 (DOLLARS IN \$000)

FY 1995

CALIFORNIA INST OF TECH	2,231
CARNEGIE MELLON UNIV	608
CASE WESTERN RESERVE UNIV	103
CENTRAL STATE UNIV	240
CHICAGO UNIV OF	1,455
CINCINNATI UNIV OF	171
CLARK ATLANTA UNIV	170
CLARK UNIV	63
CLARKSON UNIV	116
CLEMSON UNIV	309
COLD SPRING HARBOR LAB	80
COLORADO SCHOOL MINES	376
COLORADO STATE UNIV	453
COLORADO UNIV OF	969
COLUMBIA UNIV	1,038
CONNECTICUT UNIV OF	454
CORNELL UNIV	3,233
DARTMOUTH COLLEGE	673
DELAWARE UNIV OF	552
DUKE UNIV	462
EMORY UNIV	225
FISK UNIV	100
FLORIDA STATE UNIV	2,864
FLORIDA UNIV OF	663
GEORGE WASHINGTON UNIV	87
GEORGIA INST OF TECH	61
GEORGIA STATE UNIV	94
GEORGIA UNIV OF	1,917
HAMPTON UNIV	27
HARVARD UNIV	878
HAWAII UNIV OF	105
HOUSTON UNIV OF	249
HOWARD UNIV	1,824
ILLINOIS UNIV OF	8,995
INDIANA UNIV	475
IOWA UNIV OF	95
JACKSON STATE UNIV	349
JOHNS HOPKINS UNIV	1,054
KANSAS STATE UNIV	1,830
KANSAS UNIV OF	89
KENTUCKY UNIV OF	461
LEHIGH UNIV	476
LOUISIANA STATE UNIV	242

BASIC ENERGY SCIENCES
 COLLEGES/UNIVERSITIES
 B/A
 (DOLLARS IN \$000)

FY 1995

LOUISVILLE UNIV OF	172
MAINE UNIV OF	68
MARQUETTE UNIV	87
MARYLAND UNIV OF	1,514
MASSACHUSETTS INST TECH	3,714
MASSACHUSETTS UNIV OF	677
MEHARRY MEDICAL COLLEGE	176
MIAMI UNIV OF	207
MICHIGAN STATE UNIV	3,549
MICHIGAN TECH UNIV	153
MICHIGAN UNIV OF	1,459
MINNESOTA UNIV OF	2,791
MISSOURI UNIV OF	642
MT SINAI SCH OF MEDICINE	110
NEBRASKA UNIV OF	424
NEVADA UNIV OF	127
NEW HAMPSHIRE UNIV OF	80
NEW JERSEY INST OF TECH	56
NEW MEXICO UNIV OF	824
NEW ORLEANS UNIV OF	167
NEW YORK CITY UNIV	911
NEW YORK STATE UNIV OF BINGHAM	39
NEW YORK STATE UNIV OF BUFFALO	500
NEW YORK STATE UNIV OF ST BRK	1,009
NEW YORK UNIV	1,798
NORTH CAROLINA STATE UNIV	753
NORTH CAROLINA UNIV OF	436
NORTH DAKOTA UNIV OF	104
NORTHEASTERN UNIV	92
NORTHWESTERN UNIV	2,811
NOTRE DAME UNIV OF	4,000
OHIO STATE UNIV	1,421
OHIO UNIV	49
OKLAHOMA STATE UNIV	95
OKLAHOMA UNIV OF	192
OREGON GRADUATE CENTER	211
OREGON STATE UNIV	300
OREGON UNIV OF	399
PENNSYLVANIA STATE UNIV	1,971
PENNSYLVANIA UNIV OF	1,758
PITTSBURGH UNIV OF	605
POLYTECHNIC INST BKLYN	55
POLYTECHNIC UNIV	126

BASIC ENERGY SCIENCES
 COLLEGES/UNIVERSITIES
 B/A
 (DOLLARS IN \$000)

FY 1995

PORTLAND STATE UNIV	92
PRINCETON UNIV	1,384
PURDUE RES FOUND	338
PURDUE UNIV	4,392
RENSELAER POLYTECHNIC INST	638
RHODE ISLAND UNIV OF	19
RICE UNIV	796
ROCHESTER UNIV OF	908
ROCKEFELLER UNIV	83
RUTGERS STATE UNIV	791
SCRIPPS INST OF OCEANOGRAPHY	200
SOUTH CAROLINA STATE UNIV	149
SOUTH CAROLINA UNIV OF	311
SOUTH FLORIDA UNIV OF	56
SOUTHERN CAL UNIV OF	1,095
SOUTHERN ILL UNIVERSITY	193
SOUTHERN UNIV	78
STANFORD UNIV	3,553
STEVENS INST OF TECH	300
SYRACUSE UNIV	169
TENNESSEE UNIV OF	887
TEXAS A&M UNIV	790
TEXAS ENG EXPERIMENT STATION	241
TEXAS TECH UNIV	173
TEXAS UNIV OF	1,476
TUFTS UNIV	60
TULANE UNIV	233
UTAH UNIV OF	1,081
VANDERBILT UNIV	141
VIRGINIA COMMONWEALTH UNIV	293
VIRGINIA STATE UNIV	150
VIRGINIA UNIV OF	702
VPI & STATE UNIV	587
WASHINGTON STATE UNIV	1,167
WASHINGTON UNIV	418
WASHINGTON UNIV OF	1,171
WAYNE STATE UNIV	289
WESTERN MICHIGAN UNIV	195
WESTERN WASHINGTON UNIV	146
WICHITA STATE UNIV	50
WILLIAM & MARY COLL OF	119
WISCONSIN UNIV OF	2,628
WOODS HOLE OCNORPH INST	271

BASIC ENERGY SCIENCES
COLLEGES/UNIVERSITIES

B/A

(DOLLARS IN \$000)

FY 1995

WORCESTER FOUNDATION	94
WYOMING UNIV OF	87
YALE UNIV	909
UNDETERMINED. PENDING PEER REVIEW	<u>7,730</u>

\$ 123,604

TOTAL BASIC ENERGY SCIENCES

Note: FY 1996 data is not currently available.

FUSION ENERGY
COLLEGES/UNIVERSITIES

B/A

(DOLLARS IN \$000)

FY 1995

AUBURN UNIV.	\$ 521
CALIFORNIA INST. OF TECH.	380
CALIFORNIA UNIV. OF BERK.	340
CALIFORNIA UNIV. OF DAVIS	891
CALIFORNIA UNIV. OF IRV.	598
CALIFORNIA UNIV. OF LA	3,875
CALIFORNIA UNIV. OF SBARB	225
CALIFORNIA UNIV. OF SD	10,210
COLORADO SCHOOL OF MINES	41
COLORADO UNIV. OF	50
COLUMBIA UNIV.	1,003
CORNELL UNIV.	565
DARTMOUTH COLLEGE	50
GEORGIA TECH RES. CORP.	150
ILLINOIS UNIV. OF	228
JOHN HOPKINS UNIV.	424
LEHIGH UNIVERSITY	50
MARYLAND UNIV. OF	1,277
MASSACHUSETTS INST. TECH.	38,521
MISSOURI UNIV. OF	119
NEW YORK UNIV.	1,100
OLD DOMINION UNIV.	9
PRINCETON UNIV.	100
RENSSELAER POLYTECHNIC	870
ROCHESTER UNIVERSITY OF	50
ROLLINS COLLEGE	42

FUSION ENERGY
COLLEGES/UNIVERSITIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>
TEXAS UNIV. OF	6,833
WASHINGTON UNIV. OF	1,290
WILLIAM & MARY COLL. OF	61
WISCONSIN UNIV. OF	6,954
YALE UNIV.	<u>96</u>
TOTAL FUSION ENERGY	<u>\$ 74,733</u>

Note: FY 1996 data is not currently available.

HIGH ENERGY PHYSICS
COLLEGES/UNIVERSITIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>
ALABAMA. UNIV. OF	\$ 299
ARIZONA. UNIV. OF	640
BOSTON UNIV.	1,955
BRANDEIS UNIV.	475
BROWN UNIV.	1,065
CALIF. UNIV. OF BERKELEY	48
CALIF. UNIV. OF DAVIS	1,307
CALIF. UNIV. OF IRVINE	2,792
CALIF. UNIV. OF LOS ANGELES	3,515
CALIF. UNIV. OF RIVERSIDE	2,363
CALIF. UNIV. OF SAN DIEGO	1,235
CALIF. UNIV. OF SANTA BARBARA	1,704
CALIF. UNIV. OF SANTA CRUZ	1,416
CALIFORNIA INST. OF TECHNOLOGY	4,742
CARNEGIE MELLON UNIV.	1,508
CHICAGO. UNIV. OF	1,045
CINCINNATI. UNIV. OF	155
COLORADO STATE UNIV.	117
COLORADO. UNIV. OF	3,355
COLUMBIA UNIV.	1,693
CONNECTICUT. UNIV. OF	140
CORNELL UNIV.	660
DELAWARE. UNIV. OF	75
DREXEL UNIV.	220
DUKE UNIV.	637

HIGH ENERGY PHYSICS
COLLEGES/UNIVERSITIES
B/A
(DOLLARS IN \$000)

FY 1995

FAIRFIELD UNIV.	45
FLORIDA STATE UNIV.	1,210
FLORIDA, UNIV. OF	755
GEORGE MASON UNIV.	14
GEORGIA, UNIV. OF	24
HARVARD UNIV.	2,855
HAWAII, UNIV. OF	1,898
HOUSTON, UNIV. OF	180
HOWARD UNIV.	75
ILLINOIS INST. OF TECH.	400
ILLINOIS UNIV. OF AT CHICAGO	105
ILLINOIS, UNIV. OF	2,030
INDIANA UNIVERSITY.	1,725
INST. FOR ADVANCED STUDY	655
IOWA STATE UNIV.	1,165
IOWA, UNIV. OF	465
JOHN HOPKINS UNIV.	90
KANSAS STATE UNIV.	625
KANSAS, UNIV. OF	110
LOUISIANA STATE UNIV.	563
MARYLAND, UNIV. OF	3,267
MASSACHUSETTS INST. OF TECH.	8,130
MASSACHUSETTS, UNIV. OF	175
MICHIGAN, UNIV. OF	3,930
MINNESOTA, UNIV. OF	2,451
MISSISSIPPI, UNIV. OF	190
MOUNT HOLYOKE COLLEGE	70
NEW MEXICO, UNIV. OF	365
NEW YORK CITY U.-CITY COLLEGE	120
NEW YORK STATE UNIV. OF ALBANY	270
NEW YORK STATE UNIV. OF BINGHAMTON	40
NEW YORK STATE UNIV. OF BUFFALO	30
NEW YORK STATE UNIV. OF ST. BRK.	880
NEW YORK UNIV.	30
NORTH CAROLINA, UNIV. OF	250
NORTHEASTERN UNIV.	100
NORTHERN ILLINOIS UNIV.	215
NORTHWESTERN UNIV.	1,008
OHIO STATE UNIV.	2,096
OKLAHOMA STATE UNIV.	140
OKLAHOMA UNIV.	500
OREGON, UNIV. OF	842
PENNSYLVANIA STATE UNIV.	110

HIGH ENERGY PHYSICS
COLLEGES/UNIVERSITIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>
PENNSYLVANIA, UNIV. OF	2,990
PITTSBURGH, UNIV. OF	460
PRAIRIE VIEW A&M UNIV.	230
PRINCETON UNIV.	2,980
PUERTO RICO, UNIV. OF	32
PURDUE UNIV.	2,029
RICE WILLIAM MARSH UNIV.	542
ROCHESTER, UNIV. OF	2,614
ROCKEFELLER UNIV.	940
RUTGERS UNIV.	500
TUFTS UNIV.	770
VANDERBILT UNIV.	110
VIRGINIA POLY TECH	635
VIRGINIA, UNIV. OF	768
WASHINGTON, UNIV. OF	1,050
WASHINGTON, UNIV. ST. LOUIS	320
WAYNE STATE UNIV.	80
WISCONSIN, UNIV. OF	5,936
YALE UNIV.	4,032
UNDETERMINED, PENDING PEER REVIEW	<u>2,763</u>
 TOTAL HIGH ENERGY PHYSICS	 <u>\$ 107,400</u>

Note: FY 1996 data is not currently available.

NUCLEAR PHYSICS
COLLEGES/UNIVERSITIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>
ABILENE CHRISTIAN UNIV.	\$ 111
ALABAMA, UNIV. OF	80
ARIZONA, UNIV. OF	161
ARKANSAS, UNIV. OF	50
CALIF. STATE UNIV.	74
CALIF. UNIV. OF BERKELEY	465
CALIF. UNIV. OF LOS ANGELES	1,077
CALIF. UNIV. OF RIVERSIDE	310
CALIFORNIA INST. OF TECH.	682

NUCLEAR PHYSICS
COLLEGES/UNIVERSITIES
B/A
(DOLLARS IN \$000)

FY 1995

CARNEGIE MELLON UNIV.	889
CHICAGO, UNIV. OF	80
CLARK UNIV.	160
COLORADO SCHOOL MINES	96
COLORADO, UNIV. OF	866
COLUMBIA UNIV.	1,210
CONNECTICUT, UNIV. OF	154
CREIGHTON UNIV.	110
DENISON UNIV.	42
DUKE UNIV.	2,330
FAYETTEVILLE STATE UNIV.	15
FLORIDA STATE UNIV.	213
GEORGE MASON UNIV.	17
GEORGE WASHINGTON UNIV.	430
GEORGIA STATE UNIV.	80
GEORGIA TECH. RES. CORP.	89
GEORGIA UNIV.	72
HAMPTON UNIV.	155
HOUSTON, UNIV. OF	449
INDIANA UNIV.	618
IOWA STATE UNIV.	407
IOWA, UNIV. OF	144
JOHNS HOPKINS UNIV.	45
KANSAS, UNIV. OF	112
KENT STATE UNIV.	209
KENTUCKY, UNIV. OF	106
LOUISIANA STATE UNIV.	376
MARYLAND, UNIV. OF	770
MASSACHUSETTS INST. OF TECH.	18,751
MASSACHUSETTS U/LOWELL	151
MASSACHUSETTS, UNIV. OF	344
MIDDLE TENNESSEE STATE	35
MINNESOTA, UNIV. OF	630
MISSISSIPPI STATE UNIV.	58
NEW HAMPSHIRE, UNIV. OF	472
NEW MEXICO STATE UNIV.	445
NEW MEXICO, UNIV. OF	522
NEW YORK CITY U.-CITY COLLEGE	53
NEW YORK STATE UNIV. OF ST. BRK.	1,423
NORFOLK STATE UNIV.	65
NORTH CAROLINA STATE UNIV.	531
NORTH CAROLINA, UNIV. OF	544
NORTH GEORGIA COLLEGE	29

NUCLEAR PHYSICS
COLLEGES/UNIVERSITIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>
NORTHWESTERN UNIV.	278
NOTRE DAME UNIV.	52
STATE UNIV.	51
OHIO UNIV.	501
OLD DOMINION UNIV.	175
OREGON STATE UNIV.	287
OREGON, UNIV. OF	62
PENNSYLVANIA STATE UNIV.	100
PENNSYLVANIA, UNIV. OF	417
PITTSBURGH, UNIV. OF	249
PRINCETON UNIV.	230
PURDUE UNIV.	881
RENSELAER POLYTECHNIC INSTITUTE	85
RICE WILLIAM MARSH UNIV.	643
RICHMOND, UNIV. OF	92
ROCHESTER, UNIV. OF	330
RUTGERS UNIV	30
SAN JOSE STATE UNIV.	110
STANFORD LELAND JR. UNIV.	84
SYRACUSE UNIV.	204
TEMPLE UNIV.	210
TENNESSEE TECH. UNIV.	200
TENNESSEE, UNIV. OF	689
TEXAS A&M UNIV.	2,340
TEXAS, UNIV. OF	559
VALPARAISO UNIV.	153
VANDERBILT UNIV.	502
VIRGINIA POLYTECHNIC INST.	193
VIRGINIA, UNIV. OF	1,078
WASHINGTON, UNIV. OF	6,002
WASHINGTON, UNIV. ST. LOUIS	428
WAYNE STATE UNIV.	420
WILLIAM & MARY, COLLEGE OF	112
WISCONSIN, UNIV. OF	140
WYOMING, UNIV. OF	27
YALE UNIV.	4,204
UNDETERMINED, PENDING PEER REVIEW	<u>950</u>
TOTAL NUCLEAR PHYSICS	<u>\$ 60,375</u>

Note: FY 1996 data is not currently available.

BIOLOGICAL & ENVIRONMENTAL RESEARCH
COLLEGES/UNIVERSITIES

B/A

(DOLLARS IN \$(000))

FY 1995

ALABAMA, UNIVERSITY OF	\$ 673
ALBERTA, UNIVERSITY OF	189
ARIZONA STATE UNIVERSITY	174
ARIZONA, UNIVERSITY OF	859
BAYLOR COLLEGE OF MEDICINE	1,020
BERN, UNIVERITY OF	58
BOSTON UNIVERSITY	683
BROWN UNIVERSITY	450
CALIFORNIA INSTITUTE OF TECHNOLOGY	485
CALIFORNIA STATE UNIVERSITY	135
CALIFORNIA, UNIVERSITY OF	27,555
CARNEGIE MELLON UNIVERSITY	250
CASE WESTERN RESERVE UNIVERSITY	65
CHICAGO, UNIVERSITY OF	1,674
CINCINNATI, UNIVERSITY OF	151
CLARKSON UNIVERSITY	140
COLORADO SCHOOL OF MINES	111
COLORADO STATE UNIVERSITY	1,374
COLORADO, UNIVERSITY OF	1,167
COLUMBIA UNIVERSITY	2,232
CORNELL UNIVERSITY	290
DELAWARE, UNIVERSITY OF	288
DENVER, UNIVERSITY OF	134
DESERT RESEARCH INSTITUTE	250
DILLARD UNIVERSITY	18
DUKE UNIVERSITY	1,031
EAST ANGLIA, UNIVERSITY OF	150
EMORY UNIVERSITY	174
FLORIDA STATE UNIVERSITY	745
FLORIDA, UNIVERSITY OF	13
GEORGIA STATE UNIVERSITY	90
GEORGIA, UNIVERSITY OF	5
HARVARD UNIVERSITY	824
HAWAII, UNIVERSITY OF	256
IDAHO STATE UNIVERSITY	275
ILLINOIS, UNIVERSITY OF	566
INDIANA UNIVERSITY	128
INSTITUTE OF NUCLEAR MEDICINE	10,000
IOWA, UNIVERSITY OF	119
JOHNS HOPKINS UNIVERSITY	6,470
LOUISIANA STATE UNIVERSITY	\$ 130
MAINE, UNIVERSITY OF	100
MARYLAND, UNIVERSITY OF	900

BIOLOGICAL & ENVIRONMENTAL RESEARCH
COLLEGES/UNIVERSITIES

B/A

(DOLLARS IN \$000)

FY 1995

MASSACHUSETTS INSTITUTE OF TECHNOLOGY	1,440
MASSACHUSETTS, UNIVERSITY OF	440
MIAMI, UNIVERSITY OF	356
MICHIGAN STATE UNIVERSITY	297
MICHIGAN, UNIVERSITY OF	1,396
MINNESOTA, UNIVERSITY OF	100
MISSOURI, UNIVERSITY OF	310
MODENA, UNIVERSITY OF	270
MOREHOUSE SCHOOL OF MEDICINE	18
MT. SINAI SCHOOL OF MEDICINE	70
NEBRASKA, UNIVERSITY OF	360
NEVADA, UNIVERSITY OF	144
NEW HAMPSHIRE, UNIVERSITY OF	120
NEW MEXICO INSTITUTE OF MINING	496
NEW YORK UNIVERSITY	764
NEW YORK, STATE UNIVERSITY OF	2,613
NORTH CAROLINA STATE UNIVERSITY	230
NORTH CAROLINA, UNIVERSITY OF	565
NORTHEASTERN UNIVERSITY	639
NORTHERN ARIZONA UNIVERSITY	194
NOTRE DAME, UNIVERSITY OF	69
OHIO STATE UNIVERSITY	504
OKLAHOMA STATE UNIVERSITY	128
OREGON GRADUATE CENTER	508
OREGON STATE UNIVERSITY	460
OREGON UNIVERSITY OF	182
PENNSYLVANIA STATE UNIVERSITY	1,274
PENNSYLVANIA, UNIVERSITY OF	1,154
PITTSBURGH, UNIVERSITY OF	75
PRINCETON UNIVERSITY	1,342
PURDUE UNIVERSITY	168
RENSSELAER POLYTECHNIC INSTITUTE	160
RICE UNIVERSITY	62
ROCHESTER, UNIVERSITY OF	52
SAN DIEGO STATE UNIVERSITY	398
SOUTH CAROLINA, UNIVERSITY OF	70
SOUTH FLORIDA, UNIVERSITY OF	60
SOUTHERN CALIFORNIA, UNIVERSITY OF	22
SOUTHERN MISSISSIPPI, UNIV OF	130
STANFORD UNIVERSITY	920
SYRACUSE UNIVERSITY	107
TENNESSEE, UNIVERSITY OF	983
TEXAS A&M RESEARCH FOUNDATION	305

BIOLOGICAL & ENVIRONMENTAL RESEARCH
COLLEGES/UNIVERSITIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>
TEXAS A&M UNIVERSITY	415
TEXAS ENGINEERING EXPERIMENT STATION	108
TEXAS, UNIVERSITY OF	837
TUFTS UNIVERSITY	70
UTAH, UNIVERSITY OF	1,613
VERMONT, UNIVERSITY OF	543
VIRGINIA INSTITUTE OF MARINE SCIENCE	100
VIRGINIA, UNIVERSITY OF	333
WASHINGTON STATE UNIVERSITY	300
WASHINGTON UNIVERSITY	1,725
WASHINGTON, UNIVERSITY OF	5,163
WESLEYAN UNIVERSITY	142
WESTERN WASHINGTON UNIVERSITY	107
WISCONSIN, UNIVERSITY OF	2,083
WOODS HOLE OCEANOGRAPHIC INSTITUTION	1,300
YALE UNIVERSITY	209
UNDETERMINED, PENDING PEER REVIEW	<u>5,336</u>
TOTAL BIOLOGICAL AND ENVIRONMENTAL RESEARCH	<u>\$ 102,740</u>

Note: FY 1996 data is not currently available.

BASIC ENERGY SCIENCES
LABORATORIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>	<u>FY 1996</u>
Ames Laboratory	\$ 20,087	\$ 21,307
Argonne National Laboratory	183,382	159,003
Brookhaven National Laboratory	73,372	87,449
Idaho National Engineering Laboratory	2,816	3,237
Lawrence Berkeley Laboratory	56,573	70,752
Lawrence Livermore National Laboratory	42,531	44,361
Los Alamos National Laboratory	22,298	29,861
Oak Ridge Institute For Science and Education	234	332
Oak Ridge National Laboratory	80,581	95,173
Pacific Northwest Laboratory	11,949	12,061
Sandia National Laboratory	22,816	24,978

BASIC ENERGY SCIENCES
LABORATORIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>	<u>FY 1996</u>
Stanford Linear Accelerator Center	15,898	21,699
National Renewable Energy Laboratory	<u>4,603</u>	<u>4,391</u>
Total Basic Energy Sciences	<u>\$ 537,140</u>	<u>\$ 574,604</u>

ADVANCED NEUTRON SOURCE
LABORATORIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>	<u>FY 1996</u>
Oak Ridge National Laboratory	<u>\$ 19,000</u>	<u>\$ 0</u>
Total Advanced Neutron Source	<u>\$ 19,000</u>	<u>\$ 0</u>

FUSION ENERGY
LABORATORIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>	<u>FY 1996</u>
Argonne National Laboratory	\$ 6,992	\$ 8,800
Brookhaven National Laboratory	83	45
Lawrence Berkeley Laboratory	6,205	5,860
Lawrence Livermore National Laboratory	27,400	23,041
Los Alamos National Laboratory	6,196	7,201
Lockheed Idaho Technologies Co.	3,180	4,120
Oak Ridge National Laboratory	27,726	27,173
Pacific Northwest Laboratory	3,230	3,670
Princeton Plasma Physics Laboratory	120,878	123,138
Sandia National Laboratory	8,437	8,100
Savannah River Laboratory	311	400
Stanford Linear Accelerator Center	<u>50</u>	<u>50</u>
Total Fusion Energy	<u>\$ 210,688</u>	<u>\$ 211,548</u>

HIGH ENERGY PHYSICS
LABORATORIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>	<u>FY 1996</u>
Argonne National Laboratory	\$ 8,550	\$ 8,795
Brookhaven National Laboratory	74,333	73,448
Fermilab National Accelerator Laboratory	245,529	263,350
Los Alamos National Laboratory	775	795
Lawrence Berkeley Laboratory	20,994	21,465
Lawrence Livermore National Laboratory	480	960
Oak Ridge National Laboratory	290	390
Pacific Northwest Laboratory	45	50
Stanford Linear Accelerator Center	<u>162,836</u>	<u>178,075</u>
Total High Energy Physics	<u>\$ 513,832</u>	<u>\$ 547,328</u>

NUCLEAR PHYSICS
LABORATORIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>	<u>FY 1996</u>
Argonne National Laboratory	\$ 15,200	\$ 16,600
Brookhaven National Laboratory	96,400	103,400
Continuous Electron Beam Accelerator Facility	69,100	71,600
Lawrence Berkeley Laboratory	25,100	25,400
Lawrence Livermore National Laboratory	700	700
Los Alamos National Laboratory	39,300	12,000
Oak Ridge National Laboratory	<u>11,600</u>	<u>14,300</u>
Total Nuclear Physics	<u>\$ 257,400</u>	<u>\$ 244,000</u>

BIOLOGICAL AND ENVIRONMENTAL RESEARCH
LABORATORIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>	<u>FY 1996</u>
Ames Laboratory	\$ 657	\$ 599
Argonne National Laboratory	18,440	16,583
Brookhaven National Laboratory	28,367	27,958
Environmental Measurements Laboratory	5,284	5,340

BIOLOGICAL AND ENVIRONMENTAL RESEARCH
LABORATORIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>	<u>FY 1996</u>
Idaho National Engineering Laboratory	3,110	2,210
Inhalation Toxicology Research Institute	6,585	6,925
Laboratory of Radiobiology and Env. Health	2,582	1,365
Lawrence Berkeley Laboratory	44,564	32,623
Lawrence Livermore National Laboratory	20,616	20,271
Los Alamos National Laboratory	23,384	21,377
Oak Ridge Institute for Science & Educ.	6,370	5,578
Oak Ridge National Laboratory	21,913	22,293
Pacific Northwest Laboratory	82,712	96,521
Sandia National Laboratory	1,335	1,400
Stanford Synchrotron Radiation Laboratory	1,247	1,650
Westinghouse Savannah River	<u>148</u>	<u>300</u>
 Total Biological and Environmental Research	 <u>\$ 267,314</u>	 <u>\$ 262,993</u>

ER LABORATORY TECHNOLOGY TRANSFER
LABORATORIES
B/A
(DOLLARS IN \$000)

	<u>FY 1995</u>	<u>FY 1996²</u>
Ames Laboratory	\$ 665	\$ 700
Argonne National Laboratory	8,476	10,800
Brookhaven National Laboratory	7,920	10,800
Fermi National Accelerator Laboratory	450	400
Idaho National Engineering Laboratory	745	325
Lawrence Berkeley Laboratory	8,626	10,800
Oak Ridge Institute for Science & Educ.	100	0
Oak Ridge National Laboratory	9,664	10,800
Pacific Northwest Laboratory	7,712	10,800
Princeton Plasma Physics Laboratory	585	450
Southeastern Univ. Research Assn. (CEBAF)	45	200
Stanford Linear Accelerator Center	<u>540</u>	<u>200</u>
 Total ER Laboratory Technology Transfer	 <u>\$ 49,933</u>	 <u>\$ 56,275</u>

² Excludes Technology Utilization which is now the Technology Partnerships Program in the Office of the Deputy Under Secretary for Technology Partnerships and Economic Competitiveness.

ENERGY RESEARCH ANALYSIS
 LABORATORIES
 B/A
 (DOLLARS IN \$000)

	<u>FY 1995</u>	<u>FY 1996</u>
Argonne National Laboratory	\$ 300	\$ 400
Brookhaven National Laboratory	50	0
Oak Ridge National Laboratory	<u>344</u>	<u>600</u>
	<u>\$ 694</u>	<u>\$ 1,000</u>

MULTIPROGRAM ENERGY LABORATORIES - FACILITIES SUPPORT
 LABORATORIES
 B/A
 (DOLLARS IN \$000)

	<u>FY 1995</u>	<u>FY 1996</u>
Argonne National Laboratory	\$ 6,295	\$ 8,851
Brookhaven National Laboratory	7,787	10,270
Lawrence Berkeley Laboratory	6,043	6,583
Oak Ridge Institute for Science & Educ.	1,614	1,220
Oak Ridge National Laboratory	16,782	18,847
Pacific Northwest Laboratory	<u>3,744</u>	<u>4,945</u>
Total Multiprogram Energy Laboratories Facilities Support	<u>\$ 42,265</u>	<u>\$ 50,716</u>

USER FACILITIES

The following amounts of the Energy Research FY 1995 and FY 1996 budget are dedicated to User Facilities:

	<u>(B/A in thousands)</u>	
	<u>FY 1995</u>	<u>FY 1996</u>
Basic Energy Sciences	\$222,585	\$316,165
High Energy Physics	389,933	408,680
Nuclear Physics	<u>161,471</u>	<u>153,710</u>
Total Energy Research	<u>\$773,989</u>	<u>\$878,555</u>

USER FACILITIES

The Office of Basic Energy Sciences Synchrotron Light Sources, Neutron Sources and Combustion Research Facilities are used by research scientists from universities, industry, and government agencies. More than 3,600 scientists are involved in chemical sciences, materials sciences, life sciences, geosciences and ecology, and optical and general physics. They range from students and post docs to professionals; more than 60 percent are under 40 years of age. Examples of research accomplishments are: IBM researchers have developed an improved x-ray lithographic technology for making computer chips faster with large memory; noninvasive coronary angiography techniques have been developed for widespread screening of patients with risk of heart disease.

The Office of High Energy and Nuclear Physics has accelerator facilities at Fermi National Accelerator Center, Stanford Linear Accelerator Center, Continuous Electron Beam Accelerator Facility, Brookhaven National Laboratory, Argonne National Laboratory, Oak Ridge National Laboratory, Lawrence Berkeley Laboratory and the Massachusetts Institute of Technology. These facilities are used by well over 3,000 researchers and well over 1,000 graduate students from over 200 universities and other laboratories. The universities include not only most of the major state and private universities, but also many smaller universities and colleges. The research includes the recently announced confirmation of the discovery of the top quark.

High energy physics research acquires knowledge about the nature of matter and energy at the most fundamental level and about the basic forces which govern all processes in nature. Nuclear physics research acquires knowledge about the structure of atomic nuclei and the fundamental forces to hold their constituents in place. Nuclear processes are responsible for the nature and abundance of all matter, which in turn determines the essential physical characteristics of the universe.

FUSION ENERGY PROGRAMS

Senator DOMENICI. Now I am going to yield to Senator Johnston at this point.

Senator JOHNSTON. Mr. Chairman, thank you very much. There are a couple of items here I would like to talk about, both of which I have supported, but I have a great deal of question about it.

The first is fusion. In this budget there is \$50 million to begin construction of the TPX at Princeton—

Senator DOMENICI. Right.

Senator JOHNSTON [continuing]. A good machine. Now, I have introduced legislation in the past to, in effect, spark a national debate to get the Congress and the administration to focus on the question of whether we are going to build ITER, the International Tokamak.

And to build ITER, according to my estimates, would probably take about \$10 billion. And it would take about \$10 billion over a period of 20 years to operate. So we are talking about something like a \$20 billion commitment—\$20 billion.

Now, it is an international Tokamak. And it would take an international negotiation to determine how that is spread about. But my guess is, if we build it in this country, we would have to pay 60, maybe 70 percent, in that order of magnitude.

If we build it in Japan or whatever, we might have to pay 30 percent, 25 percent, whatever. I mean, pick a figure. This is all—
Dr. KREBS. Yes.

Senator JOHNSTON [continuing]. Very notional. But you just figure 60 or 70 percent of \$20 billion is \$12 to \$14 billion. Now, if it is to be built somewhere else, you are still talking about very serious money; maybe \$5 billion, and you can build it in Japan.

Senator DOMENICI. Yes.

Senator JOHNSTON. Now, to be sure, many of the components, if we did that, would be built here. And it would be an international

scientific endeavor, no doubt. But the TPX is a project justified for the next step on the way to getting ITER.

And if you are not going to do ITER, then we should really not do TPX, which is, what do you think, \$900 million, \$1 billion by the time we are finished?

Dr. KREBS. It depends on how long we delay the decision to—

Senator JOHNSTON. That is the order of magnitude, is it not? So I do not think we ought to wander into this TPX decision just by indirection not knowing where we, you, are going, and say it is only \$50 million now. And next year it will be more than that. You know, the delta goes up.

I am not against TPX at Princeton. It is a good program. You need to do the project somewhere down the line if you are going to go into ITER.

But why in the world we would want to go into another SSC debacle without even opening our eyes, I do not know. And that is what is threatened here, Mr. Chairman.

I mean, get well into TPX and then, everybody says, "Well, we did not realize you were talking about spending \$12 billion or \$14 billion, U.S. dollars, on fusion. Why did you not bring the scientists in to say it is working or it will work?"

They say now it does not work. And there are some who say it will not be economical.

So, Mr. Chairman, we very much need an administration focus and a congressional debate on whether we are willing to do this.

And I will venture to say that not more than two Senators or maybe three have the slightest notion of whether or not—I mean, what it would cost and what it might produce and what the arguments are about whether we should go into it or not.

I would like to see us have a national debate, and say, "Yes; we as a Nation, ought to do it."

I would like to see the President engage the leaders of other countries and ask them.

Now is the time to find out whether they are willing to put up the money. Do we want to really build TPX and commit \$1 billion to that without knowing whether or not the French, the Germans or the Japanese, or whoever, will put up their share? And, if so, how much? And where it is to be built and all of those fundamental, basic questions?

Senator DOMENICI. How much money is in here for TPX?

Dr. KREBS. It's approximately \$50 million for construction, to initiate construction.

Senator DOMENICI. That is right.

Senator JOHNSTON. TPX is \$49.9 million. So we will call it \$50 million. And ITER has \$75 million to \$80 million for which—you know, we have an office in San Diego. They are doing good work designing it.

But we are talking serious dollars. We are talking about a huge, huge commitment that nobody—I say nobody—has focused on. The administration is not focused on it. I know it is hard to get the administration focused on—I know you have focused on it.

Senator DOMENICI. You sound like you want to say something.

PRESIDENT'S COUNCIL OF ADVISORS ON SCIENCE AND TECHNOLOGY

Dr. KREBS. I think it is important for me, at least, to inject into this conversation that, I think we have heard these comments, and had this discussion last year.

Certainly, the Secretary has focused on it. And I have focused on it. And the committee, in your report last year, directed us to work with PCAST—the President's Council of Advisors on Science and Technology, and we have begun. That process is beginning.

My expectation is that we have a charter. John Holdren from the University of California, Berkeley, is going to be the chair. That committee will be begun at the end of March when PCAST meets. The first committee meeting will occur shortly after that. They are expected to have a recommendation on the role of the United States in fusion by, the end of June. And so we are definitely responding.

We see the PCAST review as critical to engaging at the Presidential level, the view of what our role should be in fusion and ITER.

Senator DOMENICI. Well, why do we want to commit to a \$1 billion project. You would agree with me, would you not, that TPX, if that was the end of the Fusion Program—in other words, we are not going to do ITER, you would not do TPX, would you?

Dr. KREBS. I—

Senator DOMENICI. I mean, it is not basic science. It is a way station on the way to commercialization of fusion.

Dr. KREBS. But it has an important scientific program that needs to be carried out if we are going to do a commercial demonstration.

Senator DOMENICI. Right.

Dr. KREBS. If we do not go into ITER, there is a serious question that has to be engaged as to: What is the size and scope of a U.S. domestic fusion program?

And how long are we willing to put off the achievement of these goals? Because, indeed, if we do not do it, we will definitely not achieve commercialization by the middle of the next century.

But the question also is: How much of a contributor, how much of a collaborator are we willing to be in what will probably be an ongoing activity in and amongst our partners, the current partners? Also, do we want to be a minor partner, or do we want to be an intermediate, or a major partner?

Senator DOMENICI. I mean, those are all the right questions.

Dr. KREBS. That is the issue. If we wish to continue to be a significant partner, maintain the capability that is in the country now, I think the TPX will continue to be an important element of the Fusion Program.

If we make a radically different decision, then, we do have to reconsider the role of TPX.

Senator JOHNSTON. Look, I am for TPX. I mean, I just happen to have been there, as you well know, with SSC—

Dr. KREBS. Right.

Senator JOHNSTON. We have been fighting in every, you know, every Congress to keep this program alive. It is a great program. And I mean the SSC was small potatoes compared to this.

Dr. KREBS. I understand.

Senator JOHNSTON. I just do not see taking \$50 million from school lunches and putting it into some program that may have no purpose.

Dr. KREBS. At the same time, obviously, the administration recognized the critical nature of the PCAST review. And so the expenditure of those funds would be tied to a positive outcome from the PCAST review. We would not expend those funds.

Senator JOHNSTON. You need to go from PCAST to the administration and to Congress and have Congress look at it—

Dr. KREBS. Yes.

HIGH ENERGY PHYSICS

Senator JOHNSTON. Well, I have made my point on that.

One other point, Mr. Chairman, on high energy physics which I have also strongly supported, the SSC had no more ardent supporter than I. But that is dead.

Now we have a machine over in CERN called the large hadron collider, which they want to build. I guess they want to go into—I guess the Europeans will build a new tunnel within the tunnel.

And we are being asked to put up additional appropriations on the so-called Drell Bump—Sid Drell, for whom I have great, great respect and affection, he wants to put in, I think, about a \$45 million increase for the program. Some of which is to send to CERN, is that right?

Dr. KREBS. The increase in fiscal year 1996 is not proposed for CERN, per se. I believe, in the fiscal year 1996 budget, we only had about \$6 million identified for some initial participation in CERN activities.

We would, certainly, envision the possibility if the negotiations were successful that that might be increased. But I would not see the full \$45 million available for the LHC.

Senator JOHNSTON. Well, he recommended about \$50 million a year.

Dr. KREBS. \$50 million plus inflation for each year. And then \$50 million for 1996, 1997, and 1998, take that \$50 million out, but inflation would have continued to build.

Senator JOHNSTON. Mr. Chairman, I just wonder, I mean, you know, in these days of budget stringency—and I hate to be talking against high energy physics. And I am not.

I am just sort of telling you this is a lot of money to send to CERN. Our scientists will go over there. We have facilities in this country that we are upgrading and building. The B-factory, what is that going to take this year?

Dr. KREBS. The B-factory—

Senator JOHNSTON. I mean, B-factory.

Dr. KREBS [continuing]. And the Fermi main injector? Pardon me?

Senator JOHNSTON. Yes.

Dr. KREBS. If I may, the way I see the CERN—excuse me—the Drell report had three elements. One was let us operate the facilities we have so that the field that has been at that forefront and the young people who were drawn into the SSC can make their careers in the next 5 years or so, or at least begin their careers.

The second element was providing the capability between now and the time that the LHC would come online, through the B-factory and the Fermi main injector and allow us to stay at the forefront.

And then, of course, whether or not we have the Drell Bump, whether or not we put the \$50 million in, the recommendation was to find a way to participate in LHC. The existence or nonexistence of the Drell Bump simply meant that we might play a larger role.

Senator JOHNSTON. Well, the Europeans really have not decided whether they are going to go forward, have they?

Dr. KREBS. They have a staged approach if they do not get foreign participation. The December decision to go forward had a case in which they would build what they call the missing magnet machine by 2004 or 2005 and then later upgrade that depending on whether or not they would get foreign participation.

Foreign participation at the level of \$400 million or so, total, would enable them to build the machine on time and at full scale.

BUDGET PRIORITIES

Senator JOHNSTON. Mr. Chairman, I will not go any further. But just as a final comment, the United States designed the SSC as big as it was and as powerful as it was because they thought that that power was necessary in order to get the answers they needed.

And they thought that the LHC and CERN was not big enough for that. You know, there was some scientific debate over it. And now, we are talking about sending \$50 million a year to CERN. I just wonder whether we can spend that money better at the national labs or other place in the country.

Senator DOMENICI. Senator, I really appreciate all of the observations you have made and the questions you have raised today. And I just want to say with reference to fusion and your articulation of the issue, that I am very hopeful we will not go through another year without answering the question that you have put before us and the administration.

I am aware as I can be—of the great human benefits that may flow from fusion if it is ever made commercial.

In fact, I might tell you, I have used it in an argument about not being so concerned about the world 50 years from now or 100 years in terms of population.

I have said we will go through all of this, and if fusion becomes a reality, we are not going to have nearly the problems of the larger world population because we will have energy in abundance at almost no cost, which should mean many, many other things that we worry about, including food and everything else.

On the other hand, I have become a realist about big projects. I mean, at some point, we have got to take the best shot in terms of information and make decisions.

And we are in a state of indecision. And that will not last because there is not going to be enough money. And if we go on with the \$366 million, which is the total amount in here, Senator, for fusion, if you add it all up over time, if we go on that way pretty soon, under the program, we are not going to have money for some other things.

We are just going to have to make some decisions. And if you will be there helping me, we will make the decisions. I guarantee you, you know, we will get them carried out.

Senator Burns, would you like to proceed?

Senator BURNS. I only have one question.

Senator DOMENICI. Take whatever time you would like.

Senator BURNS. I have three constituents that have been waiting for me and I wonder if I could defer and would you——

Senator DOMENICI. I am going to ask one question and then I am going to turn it over to Senator Johnston——

Senator BURNS. Could you hold it——

Senator DOMENICI [continuing]. And I must then leave.

Senator JOHNSTON. Yes; if you are not too long because——

Senator DOMENICI. No; I will not be very long. I am looking at their faces. And they do not have a lot to talk about. [Laughter.]

WIND TUNNEL WORK WITH NASA

Senator BURNS. Then let us go.

Dr. Krebs, I just have one question. And it is probably a yes or no. But I was wondering: Are you doing any consultation with NASA as far as wind tunnel and fuel efficiency?

We are looking at, over in NASA, in that committee, into doing some work on wind tunnels for the next generation of the aerospace transportation, the role in the next generation of civil air transport. Have you looked at that? Are you doing any work along that line?

Dr. KREBS. I would have to provide it for the record, Senator. It may be that other parts of the Department are. I do not believe that energy research is.

Senator BURNS. OK.

Dr. KREBS. But I will provide that for the record.

Senator BURNS. If you could, just respond to that. If you could, respond to the committee because those are things that are happening now, infrastructure to build the next generation. And I am just wondering if you are——

Dr. KREBS. Yes.

Senator BURNS [continuing]. A part of that effort.

[The information follows:]

WIND TUNNEL FUEL EFFICIENCY INFRASTRUCTURE

The Department is not doing any consultation work with the National Aeronautics and Space Administration [NASA] on wind tunnels and fuel efficiency.

COAL RESEARCH

Senator BURNS. And I am wondering because up in my State of Montana it is very important to us, have we done all of the research on coal that needs to be done?

Dr. KREBS. What I can tell you is that within the Basic Energy Sciences Program, we are continuing to do some very fundamental science that explores the underpinning of combustion research of coal.

So we think that there is some valid basic research that we are carrying out, that we think is good. And we would like to continue to carry it out.

Senator BURNS. That is all the questions I would like to ask. But if you could respond on the wind tunnel because we are looking at that over on another committee. And that is fascinating.

Sometimes we do not talk to each other enough among the agencies to find out what is going on here in this part on basic science and, of course, set the infrastructure for the next generation of our transport.

So—and I thank you for coming today. And I appreciate that very much. And I appreciate—and I wish he was not leaving the Senate, Senator Johnston.

I have enjoyed serving on his committee, Energy Committee, when he was chairman and his expertise in the area of fission and the nuclear end of energy.

And you will be missed, Senator Johnston. I want to make that very public. And I appreciate your work. And thank you.

Senator JOHNSTON. I appreciate it.

Senator BURNS. And I am going to turn this all over to you. And I am going to meet with my constituents. [Laughter.]

ACCELERATOR TECHNOLOGY

Senator JOHNSTON [presiding]. Dr. Krebs, the advanced neutron source is terminated and to be replaced by a new accelerator to be located at Oak Ridge. Tell me about your view of this accelerator technology.

Dr. KREBS. Well—

Senator JOHNSTON. And by the way, tell us why Oak Ridge as I know Los Alamos has done a lot of work on accelerators also.

Dr. KREBS. Well, in a 1984 report, and it goes back a long way, the recognition by the scientific community that neutrons have a critical role to play in material science and offer a great opportunity.

The first recommendations that laid out the opportunities for a reactor and for an accelerator-based neutron source were in 1994; then, I think it was 1991, Walter Kohn from U.C. Santa Barbara led a panel that, again, placed priority on a reactor, but also said that the technology was getting in place to do a—

Senator JOHNSTON. And this is for the purpose of imaging materials.

Dr. KREBS. Imaging materials, understanding the structure of materials, understanding, in particular cases, the structure of magnetic materials because neutrons have spins. And they can bounce off magnetic atoms in a different way than, say, electrons can from photon sources.

Senator JOHNSTON. This is a totally different purpose from the transmutation—

Dr. KREBS. Yes.

Senator JOHNSTON [continuing]. That they do at Los Alamos, is it not?

Dr. KREBS. That is the intent, yes, that—

Senator JOHNSTON. And it is sort of a different set of scientists and—

Dr. KREBS. It is a different set of scientists. The user community—the people who are aimed at the Department—is getting into

this for two reasons: One, it makes a difference to energy and environmental science; and two, because we serve the major users.

The reason Oak Ridge is in the game, whether it is a reactor or an accelerator source is because, No. 1, it has made tremendous contributions to advanced materials for energy and efficiency uses.

No. 2, it has a long history of working with significant numbers of neutron scattering scientists for at least 30 or 40 years.

Senator JOHNSTON. They would not be doing any research on tritium manufacture or plutonium transmutation or—

Dr. KREBS. I do not believe so. I mean—

Senator JOHNSTON. What is—

Dr. KREBS. I mean, to some extent, I think that becomes the call of the Congress.

Senator JOHNSTON. What is the cost of the new accelerator?

Dr. KREBS. We do not know yet in detail. We certainly do not have an estimate like the reactor. Obviously, our hope, expectation, and direction will be to come in considerably less; my guess, without a commitment, is around \$1 billion, just like the TPX.

Senator JOHNSTON. I will not ask you about RFQ because I understand that is on track and doing well.

Dr. KREBS. Yes.

FISCAL YEAR 1995 RESCISSIONS

Senator JOHNSTON. Thank you for that. And tell me about the rescissions. I understand the House proposed rescissions could adversely affect the fiscal year 1995 budget execution.

Dr. KREBS. I believe so with respect to—I had an earlier conversation with Senator Gorton, concerned about reductions in the biological and environmental research programs. And also, there would be impacts on the lab-tech transfer program.

Senator JOHNSTON. Do you have any specific advice or appeal based on those House rescissions?

Dr. KREBS. I think that the Department has already made an appeal which would be not to rescind those moneys. And I concur.

Senator JOHNSTON. What is the total amount of those rescissions?

Dr. KREBS. I am trying to remember. Is it \$35 million? It is \$30.5 million—

Senator JOHNSTON. \$30.5 million.

Dr. KREBS [continuing]. In energy research.

Senator JOHNSTON. OK.

[Pause.]

Senator JOHNSTON. Yes; and I now have those figures.

Now, the advanced neutron source is on here for a \$7.5 million—

Dr. KREBS. Right.

Senator JOHNSTON [continuing]. Rescission—

Dr. KREBS. That is right.

Senator JOHNSTON [continuing]. In appeal. That is to shut it down or—

Dr. KREBS. The \$7.5 million would be forwarded toward the design effort for the pulsed neutron source. The remainder that is in the 1995 budget—I think the total for 1995 is \$21 million.

And we would have proposed, and I think it was in our budget request, that we were going to forward a reprogramming for \$7.5 million in 1995 to begin activity for the pulsed neutron source design.

The proposed rescission forecloses that.

Senator JOHNSTON. Well, I think, Dr. Krebs, that covers my questions. If you would not mind staying around until Senator Domenici comes back—

Dr. KREBS. Sure.

Senator JOHNSTON [continuing]. I am sure he can think up some more questions for you.

Thank you very much, Dr. Krebs. And Senator Domenici—I will join with Senator Domenici in keeping our Department of Energy and Science, if we can rename it that. If we cannot, we will keep the science functions strong and healthy.

Dr. KREBS. I would encourage you to do both.

Senator JOHNSTON. Thank you.

[A brief recess was taken.]

Senator DOMENICI [presiding]. I have a number of questions, Dr. Krebs, that I am going to submit. I would appreciate it if you would answer them as soon as you can.

Dr. KREBS. All right.

SPALLATION NEUTRON SOURCE

Senator DOMENICI. With reference to the new spallation neutron source, may I first say for the record that I am very pleased with the Department's newfound enthusiasm for this program? If you knew of the background, you would know that there is a touch of sarcasm in my voice.

Second, having said that, I will not ask you a lot of questions except one. Why is not the Department planning to conduct an open site selection process with reference to that?

And I think I know the answer, but perhaps you can give it. Or maybe you could give me what you understand to be the case.

Dr. KREBS. Well, let me speak first to why I think there are two issues here. But let me speak first to why I think Oak Ridge is a preferred site. First of all, I think it has a history.

We are doing neutron scattering. Let me go back a little bit. We are doing neutron scattering for two reasons. We are doing neutron scattering, certainly, within the Office of Energy Research.

We are doing it because it is a terrific tool, a tremendous tool to understand materials, particularly as they have energy and other practical applications. And it has demonstrated that for the last 50 years.

The second is we do it because we have a lot of scientific users who contribute to our mission. Oak Ridge has a long history of using neutrons for making a difference in energy material science. And it has a long history of serving neutron scattering users.

So from my point of view dealing with Oak Ridge directly, that—

Senator DOMENICI. OK. I believe I understand the dilemma you are in. I will submit the remainder of these questions.

I think we have gone through fusion. So I am just going to submit a whole batch of questions later.

Senator DOMENICI. We will settle for what Senator Johnston asked you regarding accelerator technology and my observations and implicit urging that you not fall behind on the recommendations that you promised us. I think we have got to get them.

Dr. KREBS. We have worked very hard to do that.

DRELL REPORT

Senator DOMENICI. Now, on the Drell report, I just want to ask one more question just as simple as you can, and as quickly as you can give the answer. Is the Department in full agreement with the Drell report or not? I could not tell from your discussion with Senator Johnston.

Dr. KREBS. We are in full agreement. We are trying to implement it.

[Pause.]

HUMAN GENOME PROGRAM

Senator DOMENICI. Are you recommending—what is the level of funding that you are recommending for the human genome?

Dr. KREBS. It is about \$70 million. It is equivalent to what it was last year.

Senator DOMENICI. All right. So they are maintaining the program, as you understand it in the President's budget, at something like the expected level that we have been working on in our 20-year plan.

Dr. KREBS. Yes.

Senator DOMENICI. I just want to suggest to you that there is one Senator sitting right here in front of you that is very aware of this project and its fantastic potential for human wellness.

Dr. KREBS. Yes.

Senator DOMENICI. In fact, I think it is the wellness program of all programs. We talk about how we are going to keep people healthier.

Dr. KREBS. Yes.

Senator DOMENICI. And this is the one, over time. And I do not believe you should ever shy from a leadership role, because if it was not for the Department of Energy's enthusiasm some 8 years ago, we would not have a program.

Dr. KREBS. Right.

Senator DOMENICI. Are you familiar enough to just, quickly, tell me whether you think the genome project is on schedule, doing what it is supposed to, or should we wait and ask—

Dr. KREBS. I think that we are meeting the goals that were established in the plans. And the plans, of course, are revisited on a regular basis. New goals were set because, in fact, I believe the program, in certain areas, was ahead of schedule.

Senator DOMENICI. I just cannot go through a hearing without reminding you, even though the National Institutes of Health is the place where the director is housed, that a very important part of our funding is for continuous ongoing evaluation of the ethical, legal and social implications of the mapping of all of the chromosomes of the human body.

And I think it is very important that the Department of Energy, especially considering wherein they got their original expertise that

you—which, incidentally, happened to be because of the use of the atomic bombs.

Dr. KREBS. Yes.

Senator DOMENICI. The Department of Energy was involved in very in-depth genetic research with reference to the effects of that and, as a consequence, became hugely competent in terms of—

Dr. KREBS. Yes.

Senator DOMENICI [continuing]. Devices that would be used to see what is going on in the chromosomes of the human body and to map them. But I think without the strong ethical evaluation a great, great program could fall in the ditch quickly. So I urge that you be involved.

Dr. KREBS. Yes.

GLOBAL CLIMATE CHANGE

Senator DOMENICI. Could you supply for the record how much money the U.S. Government is spending on global climate change aside from your Department, and where it is and how much?

Dr. KREBS. I will provide it for the record.

Senator DOMENICI. All right. Again, for the record, on my side, it comes as a great surprise and a shock to many that we are doing rather extensive research. And it is not all in one place.

Dr. KREBS. Yes.

Senator DOMENICI. As a matter of fact, until about 3 years ago, nobody knew where it was up here on the Hill.

We just—every time we had one program before a committee we would argue that we are not doing enough, until finally somebody said, “Well, why do we not tell them all of the things we are doing instead of just what the Department of Energy or NOAA is doing or the like?”

So if you would get that in, that would be helpful for our record. [The information follows:]

U.S. GLOBAL CHANGE RESEARCH PROGRAM

A summary of the U.S. Global Change Research program is provided below:

(Budget authority, dollars in millions)

	Fiscal year 1995 estimate	Fiscal year 1996 proposed
Defense	6	6
Health and Human Services	31	32
Energy	¹ 126	¹ 124
National Aeronautics and Space Administration	1,338	1,341
National Science Foundation	169	183
Agriculture	61	67
Commerce	78	97
Interior	31	30
Environmental Protection Agency	32	26
Smithsonian	3	3
Tennessee Valley Authority	1	1
Total	1,876	1,910

¹The DOE global change crosscut printed in the President's budget (\$371 million) included funding for Energy Research, Policy, Energy Efficiency and Fossil Energy. After the budget was printed, OSTP directed that the global change crosscut be reduced to Energy Research (\$123.5 million) and Policy (\$.2 million) only.

A narrative description of the program is produced in "Our Changing Planet," an annual report by the Committee on Environment and Natural Resources Research of the National Science and Technology Council. The report will be published as a supplement to the President's fiscal year 1996 budget request. A copy of the report will be provided when it becomes available.

LOS ALAMOS NEUTRON SCATTERING CENTER

Senator DOMENICI. Could we talk just a minute about something very important to us at Los Alamos which is the LANSCE, the Los Alamos Neutron Scattering Center.

What level of funding is requested for the LANSCE operation in 1996 under material sciences? How many months of operation will this level of funding allow for the national user community?

Dr. KREBS. OK. What I can tell you is that within the framework of the national—of the science facilities initiative, we would provide \$8.0 million for LANSCE in 1996. I cannot tell you—I am going to have to provide, for the record, what that means in terms of hours.

Senator DOMENICI. All right.

[The information follows:]

LANSCE OPERATIONS

The fiscal year 1996 request for operating LANSCE is \$6.97 million. In addition to these facility operations funds, the request includes an additional \$1.0 million for capital equipment. This allows LANSCE to operate on a full schedule i.e., 1,000 hours, thus, making its facilities available to users for 4–5 months over the year. LANSCE operations are dependent on the reliable operating of LAMPF which is supported by Defense Programs in fiscal year 1996.

ADDITIONAL SUBMITTED QUESTIONS FOR THE RECORD

Senator DOMENICI. I think I can put all of the rest of these questions in the record for your response. Do you think maybe a couple of weeks to get the answer?

Dr. KREBS. As far as ER is concerned, we will get them done within the next few days. And the Department is very committed to getting these out to you fast.

Senator DOMENICI. All right. What you are saying is you will not have the final word. It will go somewhere else for review?

Dr. KREBS. I am not going to hold it up.

Senator DOMENICI. Well, I do not know if I ought to ask you anything about the decision on the new spallation facility for fear I will get the wrong answer. But anyway, I will submit some on that anyway.

Dr. KREBS. I understand.

Senator DOMENICI. OK.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY SENATOR DOMENICI

ENERGY RESEARCH OVERVIEW
AND NEW INITIATIVES

Question: Why is your new \$100 million user facilities initiative important?

Answer: The Department of Energy budget proposal for FY 1996 includes a Scientific Facilities Initiative that will lead to more effective use of a remarkable array of research facilities, many of which have no counterpart in any country. These innovative, state-of-the-art facilities are important national resources that represent large federal investments in specialized energy, environmental, medical, physics and industrial research. The facilities include high energy and nuclear physics accelerators, neutron and synchrotron light sources, and smaller facilities such as electron microscopy centers.

Each year, about 15,000 university, industry, and government-sponsored scientists conduct cutting-edge experiments at these facilities. The number of user groups conducting research at Department of Energy synchrotron, neutron, and electron microscopy facilities has tripled since 1987. In many fields, such as materials science, U.S. industry relies heavily on the Department's facilities to conduct experiments that would be too expensive or even impossible for industry alone.

To meet increasing demand for operating time at these unique basic energy sciences, high energy physics, and nuclear physics facilities, the Scientific Facilities Initiative provides \$100 million. That sum represents a user-facility funding increase of about 10%; yet it will increase user-facility operations by about 30%, thereby leveraging both federally and privately sponsored research.

Question: For how many additional users will this allow access to your research facilities?

Answer: This initiative will allow additional users ranging up to 3,000.

Question: What portion of the \$100 million user facility initiative will be distributed through competitive grants?

Answer: Approximately 20% to 30% of the Scientific Facilities Initiative Funds (\$100 million) will be provided directly to user groups through competitively awarded grants. Remaining funds are for operating time, instrumentation, and user support, based on needs identified by users.

FUSION ENERGY
PRESIDENTIAL REVIEW

Question: The subcommittee has several difficult funding decisions to make in the coming weeks, and the fusion program is under scrutiny in Congress, as well as the Administration. When will PCAST begin its review, and when can we expect the President to release his recommendations? (I certainly hope they are available before we begin writing our bill.)

Answer: The President's Committee of Advisors on Science and Technology subpanel that will review the fusion program held its first meeting on March 29, 1995. The Subcommittee is expected to provide a final report on their work to the Office of Science and Technology Policy by June 1995. This timing will allow the results of the review to be available to inform the Congressional actions on the FY 1996 budget, and Department decisions on the FY 1997 budget.

Question: Specifically, what elements of the program will PCAST examine (both TPX and ITER)?

Answer: The President's Committee of Advisors on Science and Technology Subpanel will examine both the Tokamak Physics Experiment and the International Thermonuclear Experimental Reactor.

Question: In the event that the President decides that the current fusion program is too expensive, what are some of his likely options?

Answer: The President's Committee of Advisors on Science and Technology Subpanel has been asked to conduct a review that identifies the technical and policy tradeoffs and budgetary requirements for at least four different options for structuring the magnetic fusion energy program. The options to be considered are: 1) build the Tokamak Physics Experiment (TPX) and join the International Thermonuclear Experimental Reactor (ITER), 2) build TPX and do not continue with the ITER collaboration, 3) continue with ITER and do not build TPX, and 4) do not build TPX or continue with ITER. The Committee may also choose to examine additional options for structuring the Magnetic Fusion program.

Question: Is it feasible to stretch out the current mission and timeline in order to keep annual budgets smaller, and still reach the 2025 and 2040 goals?

Answer: No. Reaching the 2025 and 2040 goals requires a funding increase. If present funding levels continue, program objectives would need to be modified. The President's Committee of Advisors on Science and Technology will address this issue.

Question: What are your priorities if you have a level budget for the coming year? What if you can anticipate no more than level funding for the next five years.

Answer: The fusion program's priorities with a level budget for FY 1996 would be:

1. continue full participation in the International Thermonuclear Experimental Reactor (ITER) Engineering Design Activities (EDA) to fulfill our international commitment;
2. initiate the Tokamak Physics Experiment (TPX) construction;
3. complete the Tokamak Fusion Test Reactor (TFTR) operations and begin safe shutdown and removal procedures to make the TFTR test cell available for TPX construction.
4. start engineering development of advanced materials; and
5. maintain a strong domestic base science and technology program, including operating the DIII-D, PBX-Modified and Alcator C-MOD tokamaks, and initiating the Elise heavy ion accelerator project.

If level budgets were anticipated for the next five years, the program would continue its full participation in the ITER EDA until its scheduled completion in FY 1998. The TPX construction would continue but at a slower pace that would delay the start of operations and increase the total cost. Depending on the upcoming PCAST review the Administration would have to decide whether to try to participate in ITER construction at a more modest level.

TOKAMAK PHYSICS EXPERIMENT (TPX)

Question: What are the intended goals of TPX, and why are they important to the goals of the fusion program?

Answer: The goals of the Tokamak Physics Experiment (TPX) are to demonstrate, for the first time, the techniques required for steady-state operation of a tokamak and to explore the advanced operating regimes required for an economical power plant. Successful results from TPX would provide important experimental information that would be used to improve the tokamak design by making it smaller and less costly, therefore leading to a more attractive fusion demonstration power plant.

Question: What advantages and benefits will accrue to the U.S. and U.S. industry if TPX is pursued?

Answer: The Tokamak Physics Experiment will require building and using leading edge technology components that also have important applications to the International Thermonuclear Experiment Reactor (ITER), such as superconducting magnets, robotics for remote maintenance, and materials that can handle high-heat levels. This contributes to overall U.S. technology development efforts and will give U.S. industry the experience needed to be fully competitive and participate effectively in the construction of ITER. These technology advancements are also likely to produce spin-off technologies that could prove to have economic benefits to the country.

Question: Some scientists are of the opinion that while TPX is complementary to ITER, it would not necessarily provide any unique scientific and technological advances essential to the ITER project. Do you agree with this perspective?

Answer: The Tokamak Physics Experiment (TPX) is not essential to the International Thermonuclear Experimental Reactor (ITER). The design of ITER is intentionally conservative and does not rely on advances from any future experimental devices. Nevertheless, TPX will make unique scientific contributions to the ITER operating program in the areas of steady-state operation and advanced operating modes, and ITER will significantly benefit from these results as they become available.

Question: Since TPX would not be operational before the year 2000, and the engineering design phase of ITER is expected to be completed in 1998, what benefits will TPX provide for ITER?

Answer: At present the Tokamak Physics Experiment (TPX) is sharing information with the International Thermonuclear Experimental Reactor (ITER) on R&D and design issues. During construction, the TPX program will provide ITER with information on fabrication and assembly of a superconducting tokamak. When TPX begins operation, it will provide the ITER program information on long-pulse operation, plasma control systems, diagnostic instruments, and remote maintenance. Finally, TPX will provide information on advanced operating modes that could improve ITER operations.

Question: One reason often cited for the need to build TPX is to ensure that the U.S. has an advanced tokamak facility to sustain a strong domestic research capability while ITER is being built. Why can't that be done with existing machines such as the tokamaks at a few of the Nation's universities and the DIII-D at General Atomics?

Answer: The Tokamak Physics Experiment (TPX) would replace the present research effort on the Tokamak Fusion Test Reactor, which will be shut down at the end of FY 1995,

with a new state-of-the-art experimental facility. With the exception of Alcator C-MOD at the Massachusetts Institute of Technology, the university tokamaks are too small to contribute directly to the International Thermonuclear Experimental Reactor or a demonstration power plant. The remaining medium-size tokamak facilities (DIII-D and Princeton Beta Experiment-Modified) began operating in 1978 and are aging. The TPX will incorporate the advancements that have recently been made in the program making it a very powerful research tool. Finally, none of the existing U.S. tokamaks is capable of the long-pulse operations planned for TPX.

Question: Could the DIII-D device be converted into a steady-state superconducting tokamak? What would be the principal problems in doing so and how much would it cost?

Answer: The DIII-D cannot be converted into a steady-state superconducting tokamak. The entire machine would have to be replaced at a cost roughly equivalent to the cost of building a new machine.

Question: If the results of TPX experiments are not fully tested in ITER, can they be used in the later development of a demonstration fusion reactor?

Answer: It is likely that results from the Tokamak Physics Experiment (TPX) would need to be tested in the International Thermonuclear Experimental Reactor (ITER) in order to make use of them in a demonstration power plant. The United States is working on the analysis of advanced operating modes for ITER to ensure that the ITER design has as much flexibility as possible to test the TPX results with deuterium-tritium plasmas.

Question: What is the total projected budget for TPX (design, construction, and operation) over the life of the project?

Answer: The total project cost for the Tokamak Physics Experiment including design, supporting research and development, and construction is estimated to be \$742,000,000. It is estimated the facility will run for at least ten years, beginning in 2001, with annual operating costs of about \$150,000,000 in FY 2001 dollars.

Question: It is my understanding that much of the conceptual design of ITER was completed even before TPX was initiated. Accordingly, many research areas such as long-pulse operation, improved divertor performance, superconducting magnets, remote handling, and plasma heating were intended to be done on existing tokamaks, and the information then incorporated into ITER. If that is true, does that not lessen the need to proceed with TPX?

Answer: The basic conceptual design of the International Thermonuclear Experimental Reactor (ITER) was completed before work on the Tokamak Physics Experiment (TPX) began. Therefore, TPX was initiated with a mission that is primarily complementary to ITER. While the design of ITER is based on the results from existing tokamaks, there are two critical issues that cannot be addressed in existing tokamaks: long-pulse operation at high power and sustained achievement of advanced operating modes. Present tokamaks can operate at high power for only 5-10 seconds, which is not sufficient to resolve the plasma control issues and continuous cooling problems that will be encountered during ITER operations. The TPX offers an opportunity to resolve these issues at a reasonable cost in medium-scale experiments.

FUSION ENERGY

Question: What are the primary scientific and technological problems facing the magnetic fusion program today?

Answer: Although scientists have made tremendous progress in understanding the complex science of fusion, there remain four major issues that must be addressed:

- 1) Ignition Physics - the science of a self-sustaining fusion reaction in which the energy of the reaction product, helium, heats the fuel and sustains the reaction;
- 2) Concept Optimization - the science and technology required to design fusion power plants that are more attractive than direct extrapolations of today's experiments; for example, power plants that are smaller, more efficient, cheaper to build and operate, and easier to license;
- 3) Fusion Power Technologies - the technologies necessary for tritium handling, remote maintenance, and energy conversion; and
- 4) Advanced Materials - materials that can survive lengthy exposure to high temperatures and high energy neutrons from fusion without losing their strength or becoming highly radioactive.

Question: Dr. Krebs, how confident are you that the tokamak is the best fusion technology for eventual commercial power production?

Answer: All of the world's fusion programs have come to the view that the tokamak has the best prospect for commercialization and represents the best magnetic fusion concept to carry the development of fusion power through the physics and technology issues that must be addressed on the path to a demonstration power reactor. Therefore, the fusion program's most effective research tool for addressing the physics and technology issues facing the program is the tokamak. However, it is prudent in any development program to continue to seek out improvements. For this reason we continue to pursue a modest effort on alternatives to the tokamak as well as improvements to the tokamak.

Question: The Congressional Budget Office in its report on options for reducing the Federal deficit, offered an option which would reduce spending for the magnetic fusion program by 75 percent by the year 2000 from the FY 1995 total. That would mean a budget of about \$93 million by FY 2000. What would be the consequences for the program if that path were taken?

Answer: At a \$93,000,000 budget, the fusion program would clearly be unable to achieve its stated goals and the goals established for it in the Energy Policy Act of 1992, and would lose 3/4 of its existing infrastructure, and as many as 2,000 people. At that point the program would no longer be an energy development program but a science program that could not be an effective partner in the world's contemporary collaborative effort to develop fusion energy. A restructuring would require consultation among the Department, its advisory committees, and the community.

Question: The OTA report and others have criticized DOE for all but eliminating spending on alternate concepts. In your FY 1995 budget you are spending about \$14 million on such concepts, most of which goes to inertial fusion energy. Why haven't you been doing more to explore alternate concepts. In light of the high probability of level or declining budgets don't you think it makes sense to redirect some funding to that area away from the mainline tokamak concept?

Answer: The Office of Fusion Energy funds exploration of possible alternates to the tokamak approach. There are no alternate concepts that are at the stage of development where major increases in the scale of the devices are warranted. Alternates that are similar to the tokamak are being pursued in Europe and Japan; the United States is maintaining an awareness of and contact with these programs. At current budget levels there is not adequate scientific justification to expand the present level of effort.

The upcoming review of the fusion program by the President's Committee of Advisors on Science and Technology is scheduled to be completed in June. The results of this review will provide the Department with information required to determine the future direction of the alternate concepts activities.

Question: Not only will the high costs of fusion influence our ability to support the program over the long-term, but the pace of progress in the other energy technologies with which fusion must eventually compete also will have an impact. How is the Department assessing the costs and benefits of fusion in relation to other energy sources such as advanced fission reactors, renewables, fossil energy, etc., which certainly will experience great technological improvement of their own in the next quarter century?

Answer: The magnitude of the cost should be viewed in comparison to the importance of the mission of developing environmentally acceptable alternative sources of energy that could make this country energy independent and enhance the economic health of the Nation. The Secretary of Energy Advisory Board Task Force on Strategic Energy Research and Development is evaluating this issue. Their report is expected to be available in June 1995.

Question: Please explain the purpose of the Materials Test Facility, and identify the funding included in the FY 1996 budget for this project.

Answer: Development of materials for use in fusion power plants requires that the candidate materials be tested in a facility that produces a neutron spectrum that closely simulates the environment that will exist inside these power plants. No such facility exists in the United States or abroad. Under the auspices of the International Energy Agency, the United States, the European Union, Japan, and the Russian Federation have begun a joint conceptual design activity for such a facility. In the U.S., a total of \$1,900,000 is included in the Department's FY 1996 Fusion Energy budget request for this activity. The work is being done at the Argonne National Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory and includes industrial participation by Grumman Aerospace, Westinghouse, and Bechtel.

Question: There is a significant decrease in your funding request for your Confinement Systems subprogram. Please discuss the reasons for this.

Answer: The Confinement Systems subprogram budget request for operating expenses represents a decrease of \$56,400,000 in FY 1996 from the FY 1995 level. This decrease is associated with three anticipated actions: (1) the shutdown of the Tokamak Fusion Test Reactor operations, (2) the deferral of the Princeton Beta Experiment operations, and (3) the significant decrease of research and development and preliminary design activities on the Tokamak Physics Experiment as the detailed engineering and construction activities on the project are initiated.

Question: What funding level are you requesting for the operation of the DIII-D and Alcator C-MOD facilities in FY 1996, and what activities will be pursued at those facilities?

Answer: The Department's FY 1996 budget requests \$17,200,000 for Alcator C-MOD. The Alcator C-MOD has unique design characteristics that allow it to provide new insight into the issue of plasma control for the International Thermonuclear Experiment Reactor (ITER) and the Tokamak Physics Experiment (TPX). In the FY 1995 experimental phase, the Alcator C-MOD team installed and successfully coupled 3.5 megawatts of radio wave power to the plasma and conducted extensive studies of power handling and confinement. In FY 1996, this program will be continued and directed at extending the database into new regimes by installing additional power sources.

The Department's FY 1996 budget requests \$52,400,000 for DIII-D operations and upgrading. Of this total, \$40,100,000 will be spent at General Atomics and \$12,350,000 for other laboratories' collaborations on DIII-D. The DIII-D will continue with experiments in support of the International Thermonuclear Experimental Reactor and the Tokamak Physics Experiment. In addition, design and fabrication will be completed and installation of a divertor upgrade will begin. The divertor upgrade is expected to improve DIII-D's heat and particle exhaust capabilities. Experiments with high power microwaves will also be initiated to provide detailed control of the plasma.

Question: You have allocated about \$6 million in your FY 1996 request for the ELISE project to investigate the heavy ion driver concept for inertial fusion energy. Do you have a strategic plan for inertial fusion energy research?

Answer: Yes. The development of an efficient, reliable high-repetition rate heavy ion driver, a component needed for energy production, will be initiated with the Elise project. In FY 1996, \$3,600,000 has been requested for the start of the Elise project and for research and development associated with the construction of Elise; \$3,400,000 has been requested for continuation of basic driver research, including driver concept improvement, and to prepare for experiments with the Elise ion beam. Our intent is to rely on the inertial confinement fusion work funded by the Office of Defense Programs (ODP) for all aspects of inertial fusion development, except for those things needed exclusively for energy production. The Office of Energy Research will fund the energy production tasks. For example, the demonstration of laboratory ignition of inertial fusion targets will be done in the National Ignition Facility (NIF) scheduled to begin construction in FY 1996 by ODP. The Department is in the process of preparing a formal strategic plan for both magnetic and inertial fusion energy research.

Question: What would be the next steps after ELISE should it be successful?

Answer: Following resolution of key physics issues through successful operation of the Elise accelerator, further accelerator components could be added. These additions would permit completion of the beam experiments designed to address all the physics issues that may arise in the critical, low-energy end of a heavy ion driver. Completion of these beam experiments would achieve the goals of the Induction Linac Systems Experiments.

FUSION ENERGY INTERNATIONAL THERMONUCLEAR EXPERIMENTAL REACTOR (ITER)

Question: If the President makes the decision to go forward with construction of ITER, what will the annual budgetary requirements be, both for ITER and the entire magnetic fusion program?

Answer: U.S. participation in any future International Thermonuclear Experimental Reactor construction activity could vary depending on the extent of our role and which

country is hosting the facility. The specific level of funding and participation will depend on the intent of the United States and on what can be negotiated with the other Parties interested in construction.

Similarly, the annual budgetary requirements for the entire magnetic fusion energy program will depend on the objectives agreed to for the U.S. magnetic fusion program. Those objectives, which will also address the issue of the United States' involvement in ITER construction, will be determined after the President's Committee of Advisors on Science and Technology review of the fusion program and the recommendations of the Secretary of Energy Advisory Board Task Force on Strategic Energy Research and Development are received by the Administration this summer.

Question: What will be the total cost of ITER to the U.S.?

Answer: The U.S. cost for the International Thermonuclear Experimental Reactor (ITER) will depend on the Administration's position on fusion and ITER, and the negotiations with the other interested ITER construction participants.

Question: When will a decision be made on whether and where to construct ITER?

Answer: It would be desirable to have that decision made by the end of the current Agreement, which continues through July 1998, to allow a smooth transition into any construction activities. The Parties have not agreed on the timing for this decision at this time but it is likely to be discussed in the near future.

Question: What are the important elements to be investigated at ITER which will lead to the construction of a demonstration power plant?

Answer: The important elements to be investigated are the following:

1. Plasma ignition and burn in which some of the energy from the fusion reaction continues to heat the plasma and maintain the fusion reaction;
2. Superconducting magnet operation and burning plasma control for long durations, up to 1000 seconds, with a possibility of continuous burning;
3. Tritium fuel production, processing and reuse;
4. Testing of heat transfer modules that convert fusion energy into a high temperature fluid that would be relevant to a demonstration power plant; and
5. Cooling of all high heat flux surfaces on a continuous basis.

System integration, including remote handling techniques using robotics, of all of the above elements would take place in the International Thermonuclear Experimental Reactor (ITER) for the first time. The net result would be a demonstration of the scientific and technological feasibility of fusion, which is the ITER mission.

Question: Please discuss the site selection process for ITER, including the definition of the term "Party First"

Answer: On November 21, 1994, Secretary O'Leary provided the Congress with an Interim Report on Planning for International Thermonuclear Experimental Reactor Siting and

Construction Decisions. A copy of this report and the letter that transmitted it to Congress is provided for the record. The Department is continuing to follow the process contained therein.

"Party First" means that the Parties would first agree on who should be the Host Party and then the Host Party would proceed to identify its desired site, for concurrence by the other Parties.

The Honorable George E. Brown, Jr.
Chairman, Committee on Science, Space
and Technology
U.S. House of Representatives
Washington, DC 20515

November 21, 1994

Dear Mr. Chairman:

In the Conference Reports accompanying the Energy and Water Development Appropriations Bills for fiscal years 1993 and 1994, Congress requested a plan that describes the selection process for the proposed site within the United States for the International Thermonuclear Experimental Reactor (ITER). In the fiscal year 1994 Conference Report, Congress further requested a description of "the necessary steps that will lead to the final selection of a host site for ITER by the countries involved in the ITER program, and the schedule and critical path including milestones and budget that will be necessary to allow for the design, construction, and operation of ITER by 2005." In addition, in the report accompanying H.R. 4908, "Hydrogen, Fusion, and High Energy and Nuclear Physics Research Act of 1994," a science authorization bill, the Committee on Science, Space, and Technology noted their concern "about the process used in the past to select sites for large science and research projects such as ITER."

Enclosed is an Interim Report on Planning for ITER Siting and Construction Decisions that outlines our plans for siting and identifies those areas in which final planning must be deferred pending agreement with the other parties--the European Union, Japan, and Russia.

As described in the report, the Department will be better able to provide complete responses once the ITER Interim Design Report has been completed and the parties have accepted it. The Department currently expects that report to be available at the end of July 1995. In the interim, we will continue updating you on this process.

In order to facilitate decision making on siting, the Department has introduced to the other parties the idea that the ITER Host Party should be chosen before the selection of the specific site. We believe that this idea, which is under consideration by the other parties, is appropriate because it avoids the cost of

site selection for the non-hosts. It may also reduce the possibility that pressures associated with a site competition will force either a stalemate or a compromise solution that is not in the best interest of the project or the United States.

A decision on the siting of ITER will be a major policy decision, including consideration of technical and economic benefits, personnel and financial resources, and applicable safety and environmental regulations. The Department is currently engaged in discussions within the Administration regarding ITER. We also plan to consult with appropriate congressional committees before these issues are resolved.

In closing, let me assure you that the Department is fully supportive of the fusion program in general and of ITER and the Tokamak Physics Experiment in particular. We look forward to working with you to make the fusion program a success. If you have any questions, please contact me or have your staff contact Dr. Martha A. Krebs, Director, Office of Energy Research, at (202) 586-5430.

Sincerely,

Hazel R. O'Leary

List of Addressees

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**INTERIM REPORT TO THE CONGRESS ON PLANNING FOR
 INTERNATIONAL THERMONUCLEAR EXPERIMENTAL REACTOR
 SITING AND CONSTRUCTION DECISIONS**

I. Background

During the past two years, the Congress has shown an increasing interest in the process that the Department of Energy will pursue in selecting a site for the International Thermonuclear Experimental Reactor (ITER).

In the fiscal year 1993 and 1994 Energy and Water Development Appropriations conference reports, Congress requested "a plan that describes the selection process for the proposed site within the United States for the International Thermonuclear Experimental Reactor (ITER) and the necessary steps that will lead to the final selection of a host site for ITER by the countries involved in the ITER program." In addition, in the 1994 report, Congress also requested that the Department identify "the schedule and critical path, including milestones and budget, that will be necessary to allow for the design, construction, and operation of ITER by 2005." Further, in the report accompanying H.R. 4908, a science authorization bill, the Committee on Science, Space and Technology noted their concern "about the process used in the past to select sites for large science and research projects, such as ITER."

The following is an interim report that addresses such requests, to the extent possible, at this point in the development of the ITER project. As additional data become available, the Department will provide Congress with an updated version of this submission. As described below, the Department will be better equipped to provide complete responses to such congressional inquiries once the ITER Interim Design Report has been completed and accepted by the Parties. The Department currently expects that report to be available at the end of July 1995.

II. Considerations Surrounding ITER Site Selection Process

The United States is one of four Parties participating as equals in Engineering Design Activities in support of ITER. The European Union, Japan, and Russia are the other three Parties to the ITER project. In conducting joint research, development, and engineering design activities, the ITER Parties have been sensitive to each others' concerns regarding major decisions. This has been particularly important with regard to issues such as design,

cost, and schedule estimates, as well as ITER site requirements. Each of these elements of the project has been developed jointly, rather than by individual Parties. Department of Energy officials believe that this approach lies at the foundation of the success of the ITER project to date, and feel that it is important for the United States to maintain a coordinated and collaborative process with the other ITER Parties.

Protocol 2 of the ITER Engineering Design Activities Agreement is the phase of the ITER project that leads up to a decision whether to construct ITER. This Protocol was signed by all ITER Parties on March 21, 1994. Protocol 2 authorized a study of different approaches that could be used in reaching agreement on issues such as siting, cost-sharing, and construction of ITER.

IIa. "Party First" Site Selection Approach

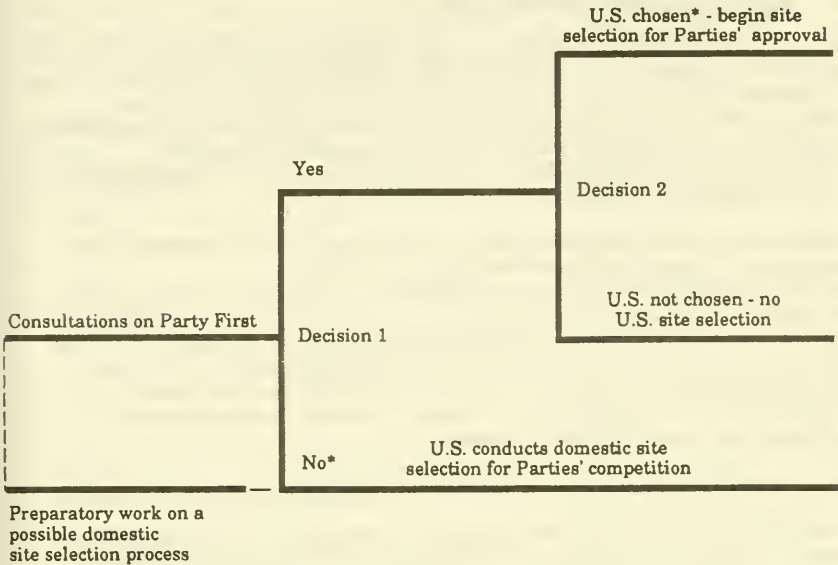
Since all Parties must agree on the siting requirements, each of the four Parties is likely to be able to produce an attractive, acceptable site. Recognizing that selecting a site will be a long, difficult and sensitive process, the Parties are exploring approaches to address this issue.

One of these approaches that the Department prefers is referred to as "Party First". This approach would have the Host Party chosen at the outset rather than having a Host site selected from proposals made by the Parties. The Department's prior experiences in negotiating the terms of international science projects indicate that cost-sharing and other foreign policy considerations often play a larger role in determining the appropriate location for a project than do the individual merits of a particular site. Thus, the eventual result of a first-step, domestic competition is often a sense of frustration among participants, who ultimately may feel that all proposals have not been evaluated on an equal basis in the second-step, international selection.

The Department believes that the Party First approach would avoid such a stalemate by selecting first a Host Party through formal negotiations that would include factors such as cost-sharing, distribution of work and contracts, rights and responsibilities of the Host Party and the non-Host Parties, and project management structure. After such negotiations, the Host Party would then use a domestic site selection process to select an appropriate site that meets the requirements agreed upon, subject to acceptance by the other ITER Parties. The Party First approach with key decision points is shown graphically in Figure 1.

An additional advantage to such an approach is that it would save each of the Parties from assuming the considerable costs of conducting site selection processes. Such costs would be in the range of \$10-\$40 million in the United States, in order to satisfy environmental regulations that apply to Federal site selections. (This estimate is based on the Department's experience during the past decade.)

Party-First Approach



Decision 1-Whether the Parties adopt Party First as siting approach

Decision 2-Choice of Host Party

* Paths resulting in U.S. site selection

Figure 1

Finally, the Department expects that the early selection of a Host Party would enhance the quality of the ITER project when compared to attempting to select the site first. This enhancement comes by allowing the design team to prepare for site-specific design tasks with an understanding of the Host Party's safety and environmental regulations that will apply even before the specific site is chosen.

Naturally, such an approach raises questions concerning the costs and benefits of the ITER project to both the Host and non-Host Parties. In the negotiations leading to the selection of the Host Party, it is likely that all Parties would agree that non-Host Parties would share equally in the contracts to build important technological components of ITER, as well as have access to the designs of all ITER components. Also, all Parties will be able to participate directly in the assembly, operation, experimentation and decommissioning of ITER at the work site. Moreover, advanced electronic communication systems are expected to facilitate

remote access to the ITER facility, whereby technical personnel in their home institutions can be involved in ITER science and technology experiments. All of these matters would have to be negotiated and agreed upon as part of the process to identify the Host Party.

III. Current Site Selection Planning Efforts

The Department is currently leading an interagency process to establish a United States position on an appropriate approach for siting ITER. The Interagency Working Group, led by the Department of Energy, includes the Department of State, the Office of Science and Technology Policy, and the Office of Management and Budget. In addition, the Department's representatives have informally explored the Party First approach with their ITER counterparts. Once a consensus within the Administration is reached, the Department hopes to enter negotiations with the other Parties on this approach.

Another important dimension to the ITER site selection decision is the development of site requirements. A recent ITER Council meeting (July 27-28, 1994) addressed this issue, and established a Special Review Group to evaluate the technical, social, safety, and environmental site requirements developed by the ITER Director. This group will help the Council to reach a decision on an appropriate set of ITER site requirements. Such requirements would provide the basis for proceeding with siting decisions. The Interim Design Report which will include design, cost, and schedule information, as well as site requirements, is expected to be ready for consideration and approval by the Council at its July 1995 meeting.

IIIa. Potential Selection Process for ITER Site if United States is chosen as Host Party

If the current process proceeds as described above, the ITER Parties would enter negotiations, determine an approach for selecting the site, and--if the Party First approach were adopted--begin negotiations on identifying a Host Party. The Department expects that agreement on an appropriate Host Party would require action by the legislatures of each of the ITER Parties. If such negotiations should lead to the selection of the United States as the Host Party, the process outlined below would then be followed to identify an appropriate United States site:

- o Publicly announce a process for domestic site selection competition by issuing an Advance Notice of Intent in the Federal Register;
- o Take steps to ensure public involvement in the site selection process;
- o Identify potential sites using ITER site requirements as well as any additional Department of Energy criteria;
- o Initiate environmental analyses for major Federal site selections as required by the National Environmental Policy Act; and
- o Select a site based on technical, societal, economic, environmental and safety considerations.

The Department has not yet identified a domestic site selection process for the reasons described earlier: namely, that such a statement could undermine current efforts to adopt the Party First approach to selecting a Host Party. However, the Department has identified three potential options for conducting a domestic competition. These options are:

- o Conduct an open competition of all interested entities;

- o Conduct a site competition limited to Federal sites only; or
- o Conduct a site competition limited to Department of Energy sites only.

Each of the options identified above has advantages and disadvantages that the Department would weigh in selecting an appropriate approach for a domestic ITER siting process. Several of the most crucial considerations the Department has identified are listed in the table below.

Option	Advantages	Disadvantages
Open Competition	<p>Broadest possible selection of appropriate sites;</p> <p>Possibility of obtaining non-Federal contributions;</p> <p>Likely to enhance public awareness of fusion power development.</p>	<p>Longest time required to select and qualify an appropriate site;</p> <p>Most expensive approach to selecting and qualifying an appropriate site;</p> <p>Necessary infrastructure least likely to be available for project.</p>
Federal Sites Only	<p>Broad selection of appropriate sites;</p> <p>Possibility of obtaining non-Federal contributions;</p> <p>Appropriate infrastructure likely to be available for project.</p>	<p>Less costly than open competition, but more expensive and more lengthy process than selecting from department sites only;</p> <p>Limits opportunities for non-Federal candidate sites.</p>
Department of Energy Sites Only	<p>Department sites are well-characterized environmentally;</p> <p>Least costly and time-consuming process for site selection and qualification;</p> <p>Appropriate infrastructure likely to be available for project.</p>	<p>Limits opportunities for non-Federal and Federal candidate sites;</p> <p>Limited opportunities for project contributions from non-Federal sources;</p> <p>Unlikely to cultivate public awareness or interest in fusion power development.</p>

III.b Selection Process for ITER if United States is not chosen to be Host Party

In the event that the United States is not selected as the Host Party for ITER, then the role of the United States is expected to be a provider of its fair share of the high technology aspects of the ITER project as identified earlier, as well as its participation in all aspects of the project as agreed in the negotiations. In addition, as necessary, any environmental analysis for United States participation as required by Executive Order 12114, "Environmental Effects Abroad of Major Federal Actions" would be completed. Site selection processes with their key milestones are shown graphically in Figure 2.

IV. Cost and Schedule for Design and Construction

ITER was conceived as a project with distinct phases, now called:

(1) Conceptual Design Activities, (2) Engineering Design Activities, and (3) Construction, Operation, and Decommissioning. Commitment to each phase has been an independent decision and has not constituted commitment to the succeeding phase.

IVa. Conceptual Design Activities

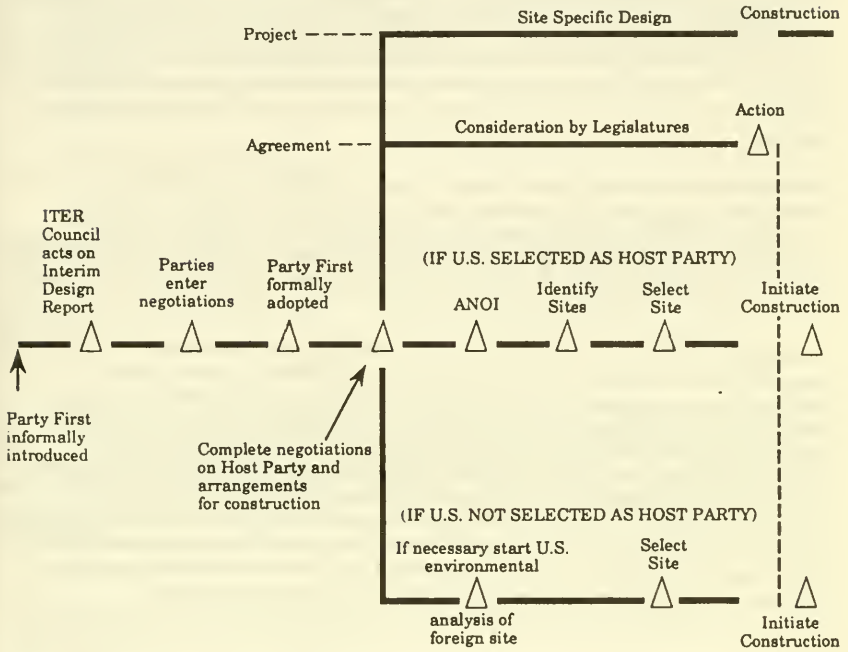
The Conceptual Design Activities were agreed to in early 1988, with the formal initiation of work beginning at the end of April 1988. Conceptual design and supporting research and development tasks were completed at the end of 1990. Each Party provided approximately 100 professional person-years of design expertise over the three-year period, and contributed an equal, one quarter share of the coordinated research and development activities. Each share costs about \$8 million annually with the total cost to the United States during the Conceptual Design Activities being approximately \$50 million.

IVb. Engineering Design Activities

Negotiations for the Engineering Design Activities Agreement began in early 1991 and were completed in mid-1992, with the signing of a four-Party Agreement on July 21, 1992. The purpose of the Engineering Design Activities is to develop the technical basis for decisions on construction of ITER. The Agreement lasts six years and calls for equal sharing of costs and benefits among Parties. Engineering design and supporting research and development work performed during this phase of the project will enable the Parties to proceed to make decisions on construction, should they decide to do so. The total cost for the Engineering Design Activities was estimated to be \$1 billion in 1989 dollars, based on the Conceptual Design Activities Final Report projection of \$750 million (1989 dollars) of coordinated research and development and 1,200 professional person-years of design effort. The United States cost, in current year dollars, to provide our equal share of these resources is approximately \$450 million, which covers both our one-quarter share of the design and the research and development, plus United States costs for the San Diego Joint Work Site and for management of the United States Home Team.

Overall Plan to Select a Site for ITER Construction

(Assuming Party First Approach)



[ANOI = Advance Notice of Intent]

Figure 2

Some key milestones for the Engineering Design Activities are:

Interim Design Report, Cost Estimate and Site Requirements	June 1995
Detailed Design Report, Cost Estimate and Safety Analysis	December 1996
Completion of Superconducting Model Coils	June 1997
Final Report on Engineering Design Activities Completion	July 1998

In addition to the detailed design of the ITER device and all supporting systems and facilities, the Engineering Design Activities will produce a schedule, plan, and cost estimate for ITER construction, operation, and decommissioning.

IVc. Preparing Construction Information for Major Decisions

Preparation of a schedule and critical path for ITER construction, as well as the completion of the site selection plan, will depend upon the information to be contained within the Interim Design Report now being prepared by the ITER Director. This report will include both an interim design and an estimate of cost and schedule for ITER and site requirements based on that design. The report is currently scheduled to be approved by the Council at the end of July 1995. We expect to provide the requested schedule and critical path information shortly thereafter.

We note that on the basis of a recent project assessment of design resource needs, approximately two years will be required after the 1998 end of the Engineering Design Activities to complete the engineering design, including site specific design. The ITER Council has asked the Director to review the major milestones, in light of available resources, and to make recommendations to the Council on any necessary adjustments in the milestones.

In anticipation of the major decisions involved in addressing ITER construction, the United States has focused its attention on the management of the ITER Engineering Design Activities, whose outcome will provide the basis for ITER construction decisions. A year ago, the United States urged the other Parties to consider carefully the style of management needed to lead the ITER activities into Protocol 2, in which the premium would be on management skills. Following an extensive management review, the ITER Council recently made significant management changes, including replacing the Director; adding as Administrative Officer, a senior manager who is experienced with large, nuclear projects; and streamlining the deliberation process of the Council. The United States was pleased to be able to provide an executive from United States industry as the new Administrative Officer. The Administrative Officer supports the Director in his management function.

The new management team has begun working with the Joint Central Team, and they will be conducting an assessment of the technical design and management arrangements this fall. The results of their assessment will be considered at the December 1994 ITER Council meeting.

Finally, the ITER Council took action at its July 1994 meeting to begin work on the preparatory tasks for the Parties' construction decisions as outlined in Protocol 2. Section 2 of Protocol 2 states that "A Special Working Group shall be established which, assisted by the Director, shall submit proposals to the Council on approaches to joint implementation for decisions by the Parties on future construction, operation, exploitation, and decommissioning of ITER..." In preparation for this Group's activity, the Council charged staff to develop documents on 1) declarations of intentions of the ITER Parties regarding joint ITER construction, and 2) proposals for siting procedures. This work is now in progress and the United States is participating actively in its execution.

Question: Have international site selection discussions begun?

Answer: Formal discussions among the four International Thermonuclear Experimental Reactor Parties have not yet begun but informal staff-level discussions are ongoing.

Question: Has the U.S. begun its own site selection process?

Answer: The United States has not begun its own site selection process. Before considering whether to begin such a process, the Administration would first address the more fundamental question of whether to participate in an international effort to construct an ITER facility. That question can be addressed after the President's Committee of Advisors on Science and Technology makes its recommendations on the future of the fusion program and ITER. If the Administration were to decide at that time to participate in ITER construction, then the Department would need the Parties' agreement on the overall approach to selecting a site and on the site requirements and selection criteria before beginning any domestic site selection process.

Question: How confident are you that the other partners in the ITER project will be able to keep up their commitments?

Answer: The European Union and Japan are both fulfilling their obligations to the Engineering Design Activities fully and on a current basis. Their programs appear to have stable funding and the International Thermonuclear Experimental Reactor (ITER) is recognized in both Parties as an important element in their domestic programs and as a leading part of the international program. These situations lend confidence to our view that they will be able to keep up their commitments. The United States is also fulfilling its obligations.

The ITER receives the highest priority for funding within the Russian Federation (RF) fusion program. Unfortunately, the overall financial situation in the RF is sufficiently difficult that the fusion program, like many other science and technology programs, is only receiving about one-half of the intended current budget. This makes it difficult for them to fulfill their commitment for resource contributions to ITER and to realize the full benefit from participation.

Question: Is there any indication that any of them are running into resource constraints similar to those in this country?

Answer: The current fusion budgets in both the European Union and Japan appear to be stable without evidence of the resource constraints being applied in this country. In Russia, there are overall resource constraints that apply broadly throughout the economy. The fusion program in Russia, like most of the other science and technology programs there, is only receiving about one-half of the funding requested by their President to conduct the fusion program agreed to at the beginning of their fiscal year.

Question: Will TPX be counted by our international partners as a portion of our share of ITER's costs?

Answer: No. None of the International Thermonuclear Experimental Reactor (ITER) partners considers the Tokamak Physics Experiment (TPX) absolutely essential to ITER. Although TPX would make unique contributions to ITER, as has the Tokamak Fusion Test Reactor, so, too, will the upgraded European and Japanese facilities, the Joint European Torus and JT-60, which also are not recognized by the Parties as part of their share of the ITER costs.

Question: When will we know with certainty whether a commercial fusion reactor is viable?

Answer: Although the Energy Policy Act of 1992 establishes, as a goal, a technology demonstration to verify the practicability of commercial power production by 2010, only the successful operation of a fusion demonstration power plant will provide the final assurance that fusion power plants are commercially feasible.

Question: If we go forward with ITER, will we be able to determine the feasibility of commercial fusion prior to the year 2025?

Answer: No. While demonstrating the scientific and technical feasibility of fusion power is the mission of ITER, the commercial feasibility of fusion will be shown using the results of operating a fusion demonstration power plant. This plant is now planned to begin operations around 2025 assuming the necessary funds are available. An early indication of the commercial feasibility of fusion power will come around 2010-2015 when the private sector must decide if it is willing to invest in the design, construction and operation of the demonstration power plant.

Question: You are requesting a \$12.2 million increase under the Development and Technology subprogram for ITER. What are the reasons for this increase, and what new areas of investigation will be emphasized during FY 1996?

Answer: The increase in the International Thermonuclear Experimental Reactor (ITER) budget is part of the originally planned budget for U.S. participation in the ITER Engineering Design Activities. The planned budget was based on the United States sharing one-fourth of the total cost for these activities. The requested FY 1996 increases will be used for completing the staffing of the Joint Central Team staff, and performing additional tasks in the areas of magnets, blankets, structural materials, remote maintenance, and design. All of these activities are consistent with the initially projected budget profile.

Question: Conceptual design activities for ITER were completed in 1990. What were the costs to the U.S. for this work?

Answer: The U.S. costs were about \$50,000,000 in as-spent dollars. An equivalent effort was expended by each of the other International Thermonuclear Experimental Reactor Parties: the European Union, Japan, and, at that time, the Soviet Union.

Question: We entered the engineering design phase with the signing of a formal agreement with the other parties on July 21, 1992. When will these activities conclude, and what will be our share of the costs associated with engineering design?

Answer: These activities are scheduled to conclude in July 1998. The total U.S. share of the costs for the Engineering Design Activities, including the cost of hosting a joint central team work site in San Diego and the cost of managing the work being conducted in the U.S., will be about \$450,000,000 in as-spent dollars.

NEW SPALLATION NEUTRON SOURCE

Question: Dr. Krebs, please discuss the advantages and disadvantages of reactors and accelerators as neutron sources.

Answer: As a neutron source, a reactor can provide the most intense, steady-state beams of neutrons for the study of materials and physical phenomena. Especially important is the fact that reactors can generate intense beams of so-called "cold neutrons" which are especially useful in the study of polymers, biological molecules, and submicron structures in

metals and ceramics. A reactor can also be used to carry out neutron radiation damage studies of materials, and for the production of certain medical isotopes. Reactors cost more than accelerators, largely because of the safety requirements imposed on reactors.

Accelerators can be used to produce very short duration pulsed beams of neutrons with a very high peak flux. The peak intensity desired from a Spallation Neutron Source is at least 8 times greater than that of our best existing reactor. The timing of the pulses in spallation neutron beams can be exploited to study time-dependent effects in materials. Accelerators produce more neutrons with higher energies than reactors but are not as effective for producing beams of cold neutrons, or for producing isotopes.

Question: The termination of ANS is a setback for the U.S. scientific community and industry. Please assess the state of U.S. neutron science today, and discuss how the U.S. stacks up in comparison to the Europeans in terms of neutron facilities and neutron science?

Answer: The U.S. has two high flux research reactors, the High Flux Beam Reactor at Brookhaven National Laboratory, and the High Flux Isotope Reactor at Oak Ridge National Laboratory. Both are 30 years old and nearing the end of their expected lives. Both of these reactors could be made equal to the current world's best neutron source, the ILL reactor in

France, by providing replacement of their reactor vessels, with other relatively small improvements; and through the provision of substantially upgraded instrumentation, additional beamlines, and guide halls. Without such upgrades and in the absence of an advanced neutron source, the U.S. will lag considerably behind Europe in its ability to carry out neutron science. The 20 megawatt reactor at the National Institute of Standards and Technology is a "younger" medium-power reactor which is functioning very well and is heavily oversubscribed because of the demand for more neutrons than it can provide. There is, in addition, the 10 megawatt reactor at the University of Missouri.

The U.S. has two spallation neutron sources, the Intense Pulsed Neutron Source at Argonne National Laboratory and the Manuel Lujan, Jr. Neutron Scattering Center at Los Alamos National Laboratory. Both are significantly less intense than the current world leader, ISIS, in Great Britain. If the Nation were to build a spallation neutron source, it would have a pulsed source equal to or better than any in the world. Similarly, if the reactors, the High Flux Beam Reactor and the High Flux Isotope Reactor, were upgraded and provided with modern instrumentation, these neutron sources would equal any reactor source in the world.

U.S. neutron scattering research is currently as good as any in the world. However, U.S. scientists are finding it increasingly difficult to gain access to the world's best neutron sources, ILL and ISIS. If the U.S. reactors are closed, we will have a capability roughly equivalent to Denmark. Over an extended period of time, one would expect the world's best neutron scientists to locate themselves near the world's best neutron sources.

Question: Why has Oak Ridge been selected as the preferred site for the new spallation source? This seems premature in light of the fact that the scientific community has not even decided on what kind of facility should be pursued.

Answer: Oak Ridge is the preferred site in order to maximize the neutron source design expertise already developed through the preparation of the Advanced Neutron Source (ANS) conceptual design and because of the substantial research infrastructure in neutron science at Oak Ridge. The reactor in the ANS was about one-third of the ANS project, and the spallation neutron source would replace the reactor with an accelerator and a target. One of the clear core competencies at Oak Ridge is neutron science. The Department has a large investment in the scientific infrastructure for neutron scattering at Oak Ridge and radiation

damage expertise. Oak Ridge also has experience in the design, construction, and operation of accelerators, such as the Oak Ridge Electron Linear Accelerator and the Holifield Heavy Ion Accelerator. Oak Ridge has one of the largest materials research and development efforts in the Department of Energy. Neutrons are used to characterize materials and are an important component of the Oak Ridge materials R&D.

Question: Which DOE laboratories have expertise in neutron science? Please discuss the activities and facilities at each location.

Answer: The Department of Energy laboratories with established programs in neutron scattering include: Ames Laboratory, Argonne National Laboratory, Brookhaven National Laboratory, Los Alamos National Laboratory, and Oak Ridge National Laboratory. A description of the activities at each laboratory follows.

Ames - Scientists have done experiments at the High Flux Beam Reactor, the High Flux Isotope Reactor, and the Missouri University Research Reactor on structural transitions, magnetic materials, superconductors, and quasicrystals.

Argonne - Most of the neutron beam research at Argonne uses the Intense Pulsed Neutron Source (IPNS), a spallation source which is not very intense by world standards, but has been operated in an extremely effective manner and is very reliable. There are Argonne National Laboratory research projects which use IPNS to study superconductors, glassy materials, organic conductors, liquid alloys and polymers.

Brookhaven - There are major materials science programs at BNL which use the High Flux Beam Reactor to examine elementary excitations in condensed matter (these are lattice excitations and magnetic excitations). These experiments involve mixed valance materials, magnetic systems, spin glasses, magnetic alloys, and superconductors. Another group studies phase transitions and magnetism by neutron scattering in high temperature superconductors, martensitic alloys, anti-ferromagnetic materials and low-dimensional systems. Another group has a powder diffractometer for structural analysis of materials, metal oxides, zeolites, and fullerenes. In addition there are neutron structural studies for newly synthesized materials and thin films. There are also programs in structural biology and boron-capture therapy for medical studies.

Los Alamos - There are several research programs which make use of the Manuel Lujan, Jr. Neutron Scattering Center (LANSCE). These include experiments on polymers, polymer blends, colloids and other macromolecular systems; high temperature superconductors, crystallography at high pressures, magnetic multilayers and residual stress in engineering components. The LANSCE facility has operated on a very limited basis in recent years.

Oak Ridge - There are several programs at Oak Ridge which make use of the High Flux Isotope Reactor (HFIR). Neutron science has been identified as one of four core competencies for Oak Ridge National Laboratory. The programs in solid state physics and materials sciences include research groups doing experiments on the structures of colloidal systems and complex fluids; another group uses inelastic neutron scattering to study lattice excitations (phonons) and magnetic excitations in solids in order to understand the dynamic behavior of these materials. Measurements are made at extreme temperatures and pressures. Another research group examines the structural properties of superconductors, ferrofluids, and micelles. A small angle neutron scattering beamline is used by a large number of users to gain information about polymers, alloys, and biological systems. A residual stress facility has been used to examine the stresses in manufactured parts. Other groups use the HFIR to study the effects of neutron irradiation on aging in metals such as those used in containment vessels in power reactors, and potential fusion power plants. HFIR is also used to provide short-lived

medical isotopes, and the Radiochemical Engineering Development Center is set up to do the chemical separation of these radioactive isotopes from the starting materials.

Question: Many scientists believe that for a new spallation source to reassert U.S. leadership in neutron science it must have a power density of 5 megawatts, which is a factor of 50 increase over existing U.S. experience at LANSCE. If this is correct, what is the Department's "roadmap" for designing and constructing such a facility?

Answer: The Department proposes to prepare a conceptual design for a 1 megawatt spallation neutron source, and intended to propose a reprogramming of Advanced Neutron Source funds to begin a conceptual design in FY 1995 and complete it in FY 1996. However, the FY 1995 funds were proposed for rescission by the Congress.

While there has been much discussion about a 5 megawatt spallation source, there have been serious questions raised about the technical feasibility of any target to absorb 5 megawatts of power. On the other hand, there is a high degree of confidence about the feasibility of a 1 megawatt target. Probably the best strategy is to build a linear accelerator (which could ultimately be upgraded to deliver a 5 megawatt beam) with a 1 megawatt target. This would provide the U.S. with a world-class spallation neutron source which could be upgraded as technical developments take place. We will undoubtedly learn a great deal by putting a 1 megawatt spallation neutron source into operation from which we could proceed to a 5 megawatt source with more confidence.

Question: What is the projected total cost of construction for a new spallation source?

Answer: The projected cost for a 1 megawatt spallation neutron source on a green field is unknown because a conceptual design has not been done. However, the cost is expected to be about \$1,000,000,000. We need a conceptual design study to get a precise cost estimate, schedules, and definition of the technical scope of such a project.

Question: Los Alamos has proposed to construct a High-Power Spallation Testbed which could be built in the next few years for less than \$100,000,000. This facility would test concepts that could be used for any next-generation spallation source. Does the Department plan to pursue this option?

Answer: The Department is reviewing the need for neutron sources in view of the decision not to continue the Advanced Neutron Source, but at this time the Department does not have any plans to pursue the High-Power Spallation Testbed. Such a decision will depend on the overall needs for neutron sources.

Question: Why are neutrons -- as opposed to light and x-rays -- particularly useful for studying certain kinds of materials such as biological molecules, plastics, and ceramics?

Answer: Because neutrons have no electric charge, they do not strongly interact with a material's surface electrons and can, therefore, penetrate deeply into the bulk of materials and probe phenomena within the bulk.

X-rays strongly interact with electrons and, therefore, can only penetrate for a few microns. Secondly, neutrons are very sensitive to the nuclei of certain light elements such as hydrogen and deuterium, and isotopes of carbon and oxygen, which are all but invisible to X-rays. This becomes extremely important in the measurement of the positions of these atoms in biological molecules, polymers and other organic materials as well as the position of light atoms such as oxygen in the new high temperature ceramic superconductors. Finally, because neutrons have

a magnetic moment, they can be used to determine magnetic structures in solids which is much more difficult with X-rays. Magnetic materials are of increasing importance in various technologies.

BASIC ENERGY SCIENCES

Question: The total budget request for Basic Energy Sciences of \$811.4 million, represents a major increase over the FY 1995 adjusted appropriation. Please highlight the reasons for this increase.

Answer: The increase over the FY 1995 adjusted appropriation of \$733,940,000 is \$77,479,000. This reflects the following areas of emphasis in FY 1996:

FY 1995 \$733,940,000

OPERATING EXPENSES

Enhance Utilization of Major User Facilities +\$ 43,296,000

Provides the resources to fully utilize the research capacity of BES' chronically underfunded national user facilities and the National Energy Research Superconductor Center. The FY 1996 request funds competitive research grants, instrumentation and facilities operations to greatly increase facilities utilization and dramatically improve the Nation's scientific knowledge in critical need areas. Of this amount, \$40,262,000 is part of the \$60,000,000 Scientific Facilities Utilization Enhancement.

Advanced Photon Source +\$ 17,620,000

Provides funding for the 6-7 GeV Synchrotron Radiation Source (the Advanced Photon Source) at Argonne National Laboratory to continue commissioning of the storage ring, the insertion devices and several beamlines leading to the initial operating phase of this facility.

Manuel Lujan, Jr. Neutron Scattering Center +\$ 6,970,000

Provides funding for the operations of the Manuel Lujan, Jr. Neutron Scattering Center at Los Alamos National Laboratory. (It is assumed that DOE Defense Programs will provide funds for LAMPF operations at this facility.) Of this amount, \$3,015,000 is part of the \$60,000,000 Scientific Facilities Utilization Enhancement.

Environmental Technology Partnerships +\$ 18,000,000

Provides for research to reduce environmental impacts in industrial sectors that produce the most pollution: chemical and allied products, pulp and paper, petroleum refining and metals.

Sustainable Development +\$ 6,000,000

Provides for basic research into new processes and products that takes total impacts and complete lifecycles into account at the beginning of development.

Partnership for New Generation Vehicles (PNGV) +\$ 8,000,000

Provides for basic research in materials and chemical sciences focused on the goals of the PNGV government/industry partnership. Areas of research include energy conversion and storage, lightweight materials, sensors, on-line process control, combustion and catalysis.

Applied Mathematical Sciences -\$ 2,428,000

The decrease in Applied Mathematical Sciences program is due to a temporary shift of resources to Capital Equipment.

Program Direction +\$ 100,000

Funds provided for support of staff needed to monitor and manage the program.

Spallation Neutron Source - Conceptual Design +\$ 8,000,000

Provides for support of research, development and engineering activities for the conceptual design of a spallation neutron source to meet the Nation's need for a next-generation neutron scattering source. The separate FY 1996 budget request for the Advanced Neutron Source (ANS) does not include funding for the continuation of the ANS, which is a reduction of \$20,764,000 from the FY 1995 appropriation.

FY 1996 CAPITAL EQUIPMENT

Advanced Photon Source +\$ 3,358,000

Additional funding for beamlines and insertion devices at the Advanced Photon Source.

BES National User Facilities +\$ 11,303,000

Enhancements to BES National User Facilities including additional beamlines and upgraded optical elements and other peripheral equipment. This is part of the \$60,000,000 Scientific Facilities Utilization Enhancement.

Equipment Associated with Research Operations +\$ 3,256,000

Increased funding for equipment associated with research operations including a disk/archival mass storage system at the National Energy Research Supercomputer Center at Lawrence Livermore National Laboratory.

FY 1996 CONSTRUCTION

Decrease in funds needed for 6-7 GeV Synchrotron Radiation Source . . -\$ 55,193,000

Accelerator and Reactor Improvements and Modifications +\$ 5,383,000

Funding for Accelerator and Reactor Improvements and Modifications includes \$5,420,000 of the \$60,000,000 Scientific Facilities Utilization Enhancement in FY 1996.

General Plant Projects/ES&H Needs +\$ 1,814,000

Combustion Research Facility, Phase II +\$ 2,000,000

Total FY 1996 Request \$811,419,000

Question: The major beneficiary of the Science Facilities Utilization Enhancement initiative is the Basic Energy Sciences program. Please list the BES facilities that will receive funding under the new initiative, and indicate what level of funding each is due to receive.

Answer: I will be pleased to provide the information for the record. (The information follows:)

SCIENTIFIC FACILITIES UTILIZATION ENHANCEMENT
BASIC ENERGY SCIENCES
(B/A in thousands)

	<u>FY 1996 Request</u>
Stanford Synchrotron Light Source (Stanford)	\$ 21,834
Advanced Light Source (LBL)	38,090
Advanced Photon Source (ANL)	94,604
National Synchrotron Light Source (BNL)	34,816
Combustion Research Facility, Phase I (SNL)	5,797
Intense Pulsed Neutron Source (ANL)	12,335
High Flux Beam Reactor (BNL)	30,808
High Flux Isotope Reactor (ORNL)	33,010
Los Alamos Neutron Scattering Center (LANL)	7,970
Center for Microanalysis of Materials (U. of Ill.)	2,029
Electron Microscopy Center (ANL)	2,509
Materials Preparation Center (Ames)	1,080
National Center for Electron Microscopy (LBL)	3,647
EN Tandem Accelerator (ORNL)	275
Shared Research Equipment Program (ORISE)	200
Shared Research Equipment Program (ORNL)	2,203
Energy Sciences Network (LLNL)	<u>24,958</u>
 Total Basic Energy Sciences	 <u>\$316,165</u>

BASIC ENERGY SCIENCES

Question: The FY 1996 Basic Energy Sciences budget includes another new initiative called the Partnership for a New Generation of Vehicles (PNGV). Please describe the objectives of the PNGV, and the rationale for including this initiative under the jurisdiction of the Office of Energy Research.

Answer: The Partnership for the New Generation of Vehicles (PNGV) is a partnership between the U.S. government and the U.S. Council for Automotive Research (USCAR) which represents Chrysler, Ford and General Motors. The partnership was formed to strengthen U.S. competitiveness by developing breakthrough technologies for a new generation of vehicles. Based on appropriate existing research and development in the public and private sectors, the partnership will plan and implement new integrated research programs to develop (1) advanced manufacturing technologies, (2) near-term vehicle improvements, and (3) advanced vehicles that are up to three times as fuel efficient as today's comparable vehicles. The program is administered by a government steering group chaired by Dr. Mary Good, Under Secretary of Commerce for Technology, and an Industry Steering Group jointly chaired by vice-presidents of Chrysler, Ford, and General Motors.

The Department of Energy has a major part in PNGV. As a significant but minor part of the total Department of Energy effort, the Office of Energy Research will carry out programs in two areas to support the PNGV initiative that are consistent with the Office of Energy Research's roles and responsibilities in the Department of Energy. The Basic Energy Sciences (BES) program will support basic research to provide the scientific basis needed to accomplish PNGV goals and objectives where basic knowledge is currently lacking and needed in areas such as lightweight materials, energy conversion processes, sensors and controls. The Laboratory Technology Transfer (ER-LTT) program will support Office of Energy Research multiprogram laboratory participation with industry in cost-shared

collaborative research and development projects under PNGV Cooperative Research and Development Agreements. The total request for these efforts is \$18,000,000, with \$8,000,000 for the Basic Energy Sciences program and \$10,000,000 for the Energy Research-Laboratory Technology Transfer program.

Question: What level of funding is requested for the PNGV, and under which subprograms will the funds be distributed?

Answer: The level of funding requested for the Basic Energy Sciences program is \$8,000,000 to be distributed between the materials sciences and chemical sciences subprograms. In the Laboratory Technology Transfer program, \$10,000,000 is requested.

Question: Will any of the funds be used for CRADAS or other technology transfer activities?

Answer: None of these Basic Energy Sciences program funds will be used for Cooperative Research and Development Agreements or other technology transfer activities. The PNGV funding under the Energy Research Laboratory Technology Transfer program will support technology transfer activities. The Basic Energy Sciences (BES) Program, within Energy Research, will support PNGV mainly in the areas of materials and chemical sciences. Basic research in materials and chemical sciences will be conducted to provide new knowledge needed for removing technology barriers preventing improvements in energy efficiency and environmental protection associated with the production and use of motor vehicles.

The Office of Basic Energy Sciences will review proposals from universities, national laboratories, and other appropriate research institutions for basic research in a number of relevant areas:

- Energy Storage Materials and Processes
- Energy Conversion Materials and Processes
- Light-weight Materials
- Impact of Emissions on the Atmosphere
- Emission Control
- Sensors for Control, Performance, and Emissions

Specific and detailed research needs in these areas were identified by a workshop on "Basic Research Needs for Vehicles of the Future" held in January, 1995. The recommendations from this workshop will be published in the appropriate scientific journals to reach as wide an audience as possible. Proposed research will be funded according to scientific excellence as judged by peer review and by its relevance to national goals of energy efficiency, environmental protection, and economic competitiveness. Preference will be given to proposers who are able to identify industrial partners.

This workshop was the result of many months of planning among DOE, the National Science Foundation (NSF), and the representatives of the automotive manufacturers under the auspices of the United States Council for Automotive Research (USCAR). The six topical areas of the workshop were selected in advance by a steering group of scientists from industry, universities, and Department of Energy laboratories as being those in which basic research was most needed to enable advanced technology development.

Question: Have any industrial partners been identified?

Answer: The specific research partners will be determined by the principal investigators responding to the request for proposal. Obviously different investigators with different research interests will have their most appropriate partners. As stated above, preference will be given in awarding grants and contracts to those investigators with identified research partners from industry. Also important will be those with research partners from the DOE technology offices, most importantly the Office of Transportation Technologies in Energy Efficiency and Renewable Energy.

Question: The other major initiative for which funding is requested is the Environmental Technology Partnerships. What are the purposes and goals of this initiative?

Answer: The initiative is structured to develop scientific knowledge that can foster novel approaches and solutions to achieving sustainable production in energy intensive industries. We expect the initiative will lead to opportunities to achieve the optimal utilization of resources, particularly energy, in industrial processes.

The initiative will provide a catalyst for researchers from academia and the National Laboratories to collaborate with scientists and engineers from industry.

The specific focus of the basic research projects will be determined through joint workshops with DOE Energy Technology programs, and include industry representatives as well as the basic and applied research communities. Hence, these funds will provide new scientific insight to help solve current environmental problems identified in specific industrial need areas. Examples of the types of research to be supported may include: waste minimization in the synthesis and processing of materials; environmentally benign synthesis routes for polymers, ceramics and semiconductors; near-net-shape forming processes for metals to minimize or eliminate grinding wastes; waste and pollution avoidance, remediation, monitoring and assessment; catalysis research for better petroleum refining and chemical production; separations and remediation of hazardous substances; biochemical research of plant and microbial systems for new environment-preserving products and processes; research on plant cell walls to improve industrial pulp and paper processes; information and computation technologies to support best practices in process monitoring, research and development and communication; improve industrial processes through optimization studies and modeling; and improved control systems and sound engineering analysis.

Question: What level of funding is requested for Environmental Technology Partnerships, and under which subprograms will the funds be distributed?

Answer: The Office of Energy Research requested \$24,000,000 for the initiative. Funds would be distributed among ER programs as follows:

<u>Basic Energy Sciences</u>	<u>FY 1996 Request (B/A)</u>
Materials Sciences	\$ 5,000,000
Chemical Sciences	3,880,000
Engineering and Geosciences	2,400,000
Advanced Energy Projects	720,000
Energy Biosciences	3,000,000
Applied Mathematical Sciences	<u>3,000,000</u>
Total Basic Energy Sciences	\$ 18,000,000

<u>Biological and Environmental Research</u>	<u>FY 1996 Request (B/A)</u>
Environmental Research	<u>\$ 6,000,000</u>
Total Biological and Environmental Research	<u>\$ 6,000,000</u>
Total, Office of Energy Research	<u>\$ 24,000,000</u>

Question: Will any of the funds be used for CRADAs or other technology transfer activities? If so, how much?

Answer: There are no plans to apply any of the funds in this manner. However, we would expect technology transfer to occur as a consequence of the research supported under this initiative.

Question: Have any industrial partners been identified?

Answer: The research topics will be selected based on the basic research needs from the following industries: petroleum refining, chemicals and allied products, pulp and paper, and metals.

The initiative will formally solicit research proposals after customers and stakeholders have been included in research needs workshops. No specific industrial partners are currently involved in the ER portion of the initiative. Awards will be made based on scientific merit as judged through peer review.

Question: Will other DOE programs, such as Environmental Management, be involved with the Environmental Technology Partnerships? If so, in what way?

Answer: The Department's Energy Efficiency and Renewable Energy (EE/RE) program and the Department's Policy Office have also requested funds in FY 1996 for this initiative. We are planning the initiative and coordinating activities with both organizations.

We expect research results will be applicable beyond the four energy-intensive industrial sectors used to define the initiative. Results will be published and openly disseminated through the usual channels for reporting scientific advances.

Question: The FY 1996 request for Energy Biosciences is \$29,534,000 about a \$1,500,000 increase over FY 1995. Approximately how much, if any, of these funds goes towards bioremediation research which could be beneficial to the Environmental Management program?

Answer: The FY 1996 request for the Energy Biosciences program will support basic research with the potential to ultimately impact the development of bioremediation technologies to benefit the Environmental Management program. In an effort to gain as much value as possible, the program attempts to support research that will also serve the development of other biotechnologies of importance to the Department.

Question: Is there collaboration between the Office of Energy Research and Environmental Management on bioremediation research?

Answer: Yes. One of the collaborative efforts with the Environmental Management program has been the joint sponsorship and organization of a workshop on research needs for phytoremediation (bioremediation based on plants). Other collaborations include heavy element chemistry and analytical chemistry.

Question: How much of the Energy Biosciences budget will be used for competitive grant awards to individual research scientists?

Answer: Virtually all of the resources awarded by the Energy Biosciences program for research go to individual research scientists after competitive peer review. Approximately 85% of the program's funds are situated in universities following competitive review of both new and renewal applications. That fraction of the program's resources that is provided to the national laboratories also involves peer review.

OFFICE OF SCIENTIFIC COMPUTING

Question: Please describe the major components of DOE's High Performance Computing and Communications Program. What funding level is requested in FY 1996 for the program and its major components.

Answer: The DOE High Performance Computing and Communications Program has significant activities in all five components of the High Performance Computing and Communications Initiative. The FY 1996 request by component is summarized in a table that I will provide for the record. (The information follows:)

DOE High Performance Computing and Communications Program FY 1996 Request^{1,2}

<u>HPCC Component</u>	<u>FY 1996 Budget Request (B/A in \$,000)</u>
High Performance Computer Systems	\$ 8,700
National Research and Education Network	17,000
Advanced Software Technology and Algorithms	74,563
Information Infrastructure Technologies and Applications	3,000
Basic Research and Human Resources	<u>20,500</u>
Total DOE HPCC Program	<u>\$ 123,763</u>

Notes:

1. The DOE High Performance Computing and Communications budget request for FY 1996 is composed of: \$113,463,000 from the Applied Mathematical Sciences subprogram; \$8,500,000 from the Fusion Energy program, which provides partial support for the National Energy Research Supercomputer Center at Lawrence Livermore National Laboratory; and \$1,800,000 from the Biological and Environmental Research program, which leverages the Applied Math and Computer Sciences support for the two High Performance Computing Research Centers at Oak Ridge National Laboratory and Los Alamos National Laboratory to support research in Global Climate Change. The total of these three contributions is the \$123,763,000 High Performance Computing and Communications Program FY 1996 budget request.

2. The FY 1996 budget request for the Applied Mathematical Sciences subprogram is \$116,463,000. This request includes \$113,463,000 for the DOE High Performance Computing and Communications Program and \$3,000,000 for the Environmental Technology Partnerships initiative which is not a part of the High Performance Computing and Communications Program. In previous fiscal years the entire Applied Mathematical Sciences subprogram budget has been associated with the High Performance Computing and Communications Program.

Specific activities to be supported include:

- Continue support for High Performance Computing Research Centers (HPCRC's) at LANL and ORNL to test the applicability of advanced computer architectures to problems critical to the DOE mission such as computational chemistry, structural biology, fluid and combustion dynamics, petroleum reservoir and groundwater modeling, fusion energy, and high energy physics.
- Support for Energy Sciences Network deployment and upgrades to ensure availability of advanced network services required by DOE/ER supported researchers and appropriate accessibility of unique DOE facilities to academic and industrial researchers.
- Begin the transition of massively parallel computing system prototypes into a production computing environment in the ER supercomputer access program. This involves working with industry, especially independent software vendors, to provide flexible robust, and reliable software environments for these systems.
- Provide research and development funds, in collaboration with U.S. industry and academia for technology evaluation and for software tools to improve distributed computing capabilities and massively parallel systems effectiveness.
- Initiate research in Information Infrastructure Technologies and Applications to develop the underlying technologies and tools which will be required to support national challenges such as energy supply and demand management, Telecommuting, and online access to major DOE experimental and computational resources.
- Support for the DOE Scientific Facilities Initiative, to optimize the utility of the National Energy Research Supercomputer Center.
- Continued support for the Advanced Computational Technology which began in FY 1995.
- Educational technologies and curricula to promote the use of computational science understanding and tools and to promote involvement in the sciences by traditionally under-represented groups.

Question: Please describe the Advanced Computation Initiative, and the Office of Energy Research's role in the project.

Answer: ACTI is a major component of the Administration's Domestic Natural Gas and Oil Initiative. The work will be focused on fundamental research on applied mathematics of seismic phenomena, modeling of reservoir dynamics, flow of gases and liquids in heterogeneous media, and transport of contaminants. The Office of Energy Research, along with the DOE Defense Programs and the Office of Fossil Energy participated in the ACTI in FY 1995 with \$10,000,000, \$20,000,000 and about \$8,000,000, respectively.

DOE/ER participated in this initiative in two ways, by refocusing existing high quality research on oil and gas to the specific goals of the initiative, and by funding new ACTI research proposals which were in the top 40 selected by a petroleum industry panel.

Question: What is the requested funding level in FY 1996 for the initiative?

Answer: In FY 1996, the proposed DOE/Energy Research budget contains \$10,000,000 for ACTI. Of this amount, \$4,000,000 is budgeted for the Technology Transfer program, and \$6,000,000 for the Basic Energy Sciences program (\$3,000,000 in the Applied Mathematical Sciences subprogram and \$3,000,000 in the Engineering and Geosciences subprogram).

Question: What portion of those funds are for the Domestic Natural Gas and Oil Initiative?

Answer: The proposed \$10,000,000 in the DOE/ER budget is allocated for the Domestic Natural Gas and Oil Initiative.

Question: What is the Energy Sciences Network (ESnet) and what funding level is requested for it in your FY 1996 budget?

Answer: ESnet is DOE's component of the Federal Internet which allows the broad university and industrial community to access DOE facilities to collaborate with DOE laboratory researchers through the existing complementary NSFNET and the Regional Network infrastructure. DOE/ER provides direct access to ESnet only to end users with significant requirements for high speed network access resulting from DOE sponsored research at DOE research facilities. DOE/ER will continue this policy in coordination with other agencies participating in the High Performance Computing and Communications Initiative as the Internet evolves into the National Research and Education Network.

ESnet is now in a transition to service based on Asynchronous Transfer Mode (ATM) service provided by a commercial carrier. This prototyping/testing in the ESnet will allow the Federal networks to evaluate this option for future network high performance requirements and will lead the way for converging the Internet technologies with the national telecommunications infrastructure.

DOE/ER is actively involved with the Federal Network Council and other groups to ensure a coordinated interagency effort in this area.

DOE/ER has requested \$15,000,000 in FY 1996 for this effort.

DOE/ER gigabit speed communications research also is oriented to satisfy future ESnet requirements to support DOE science and technology activities such as remote access to experimental facilities and tools to support distributed scientific collaborations and "virtual" laboratories. This request is for \$2,000,000 in FY 1996.

Question: What is the purpose of the Grand Challenge Projects under the HPCC program?

Answer: The Grand Challenge projects have three important purposes in DOE's HPCC program.

First, they enable us to test and evaluate, and thereby prove the viability of applying advanced computer systems on large scale scientific problems. This provides invaluable feedback to the designers of such computer systems.

Second, they enable us to develop and test the software technologies and algorithms which will be required to apply the next generation of computing technologies to scientific and engineering problems which are critical to DOE's mission and to the nation.

Finally, but more importantly, they enable significant advances in the scientific state of the art in areas such as nuclear fusion, quantum chemistry, global climate change, groundwater flow, and oil recovery simulation which are critical to DOE's mission. The grand challenges are teams of scientists, working together across disciplines, using the most capable computational tools available (generally developed by the HPC program), and sharing ideas and new technologies to perform computational studies of these science areas to provide better understanding of scientific phenomena.

Question: Please explain the reasons for the \$17.9 million increase in the Basic Energy Sciences Capital Equipment budget request.

Answer: The increases in Capital Equipment are for the following:

<u>CAPITAL EQUIPMENT</u>	<u>FY 1996</u>
Advanced Photon Source	\$ 3,358,000

This increase is for equipment associated with the 6-7 GeV Synchrotron Radiation Source (the Advanced Photon Source) at Argonne National Laboratory. This increase follows the funding schedule shown on the project data sheet for this construction project to be completed in FY 1996. The funding will be used to build insertion devices and beamline front ends.

Enhancements to BES National User Facilities that are part of the Scientific Facilities Initiative	\$11,303,000
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Additional beamlines will be provided at the National Synchrotron Light Source, the Stanford Synchrotron Radiation Laboratory, the Advanced Light Source, the High Flux Beam Reactor and the High Flux Isotope Reactor to meet the growing demand for x-rays and neutrons. State-of-the-art optical elements and monochrometers will also be provided. Enhancements will be provided to the Ames Materials Preparation Center, the Illinois Center for Microanalysis of Materials, the Oak Ridge National Laboratory shared instrumentation program, and electron microscopy centers at Lawrence Berkeley Laboratory and Lawrence Livermore National Laboratory. Additional funds are also provided for peripheral test equipment to support the operation of the National Energy Research Supercomputer Center.

Equipment Associated with Research Operations	\$ 3,256,000
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Increased equipment funding for ES&H requirements and state-of-the-art instrumentation associated with the research in the following subprograms: Materials Sciences, Chemical Sciences, Engineering and Geosciences, Advanced Energy Projects, Energy Biosciences. The increase also supports the acquisition of a disk/archival mass storage system at the National Energy Research Supercomputer Center under the Applied Mathematical Sciences subprogram.

HIGH ENERGY PHYSICS

Question: Your FY 1996 budget includes \$6 million for initial U.S. participation in Large Hadron Collider (LHC) related research and development. Has the U.S. made a firm commitment to participate fully in the LHC project at CERN?

Answer: Discussions with CERN about U.S. involvement in the LHC are in a very early stage and no agreement has been reached. Thus it is not possible to give a definitive answer at this time.

Possible U.S. roles in the LHC project include work on both the machine and on the two large colliding beam detectors which are planned. In any of these areas, U.S. participation would involve a mix of R&D, design, fabrication and operations efforts probably focussed on specific subsystems. Technical areas of the machine that have been explored include: beam transfer lines, superconducting magnets, beam control and measurement, and portions of the machine control systems. In the detector area, the possibilities include the muon detection subsystem, portions of the various calorimeters, and aspects of the data acquisition subsystems.

Question: If we do proceed with the Europeans at CERN, what would be our total funding commitment to the LHC, and over what period of time?

Answer: Since there is not yet any agreement with CERN, it is not possible for me to give a definitive answer. Preliminary considerations have suggested a U.S. expenditure in the range of \$400,000,000 to \$600,000,000 spread over at least ten years for LHC related activities. We estimate that much of this funding would support work performed in the U.S. by our laboratory and university contractors.

Question: Why is the LHC project important -- both from a national perspective and a scientific perspective?

Answer: Participation in the LHC would enable our physicists to work on the highest energy accelerator in the world and use it for experimental research when it becomes operational in 2005. As a highly visible, challenging, and important scientific project, U.S. participation would ensure the continuation of the world class excellence of our university and national laboratory scientists as well as afford the opportunity to train students in leading edge science and technology. Sustaining this expertise would keep the U.S. at the forefront of proton accelerator research and technologies for the long-term future. Without such participation, our scientists, after the LHC becomes operational, would no longer be able to work at the high energy frontier.

The SSC was planned to be at a significantly higher energy level (40 TeV) than that planned for the LHC (14 TeV) and would have provided a much superior research tool. Nevertheless, the LHC, in the absence of the SSC, will provide the highest energy proton beams available anywhere in the world and participation in the LHC research program is essential to have access to this research frontier.

Meeting the demanding technological, manufacturing, and cost requirements of the LHC components would improve the capabilities and expertise of our participating scientists and industries. CERN, with its broad international basis, is an ideal location to showcase U.S. capabilities and equipment. In addition, we would also have access to new technology developed elsewhere during LHC construction.

Helping to build the LHC and developing the strategies and mechanisms needed for global cooperation on such a large science project would further strengthen our credibility as a capable and reliable participant and host for such projects, in all fields of science.

Question: This will be a difficult budgetary year for this subcommittee, and there is little doubt that we will not have sufficient resources to fund every program at the level I

would like. How will you proceed with the program if we are unable to provide the full \$50 million "bump?"

Answer: We would, of course, have to make a careful analysis to determine the best detailed strategy to optimize the productivity of the program. The details will depend strongly on what fraction of the \$50,000,000 bump is provided. In general, I would expect to see reduced running of the accelerator facilities, and reduced support for university based researchers. We would give high priority to keeping the two upgrade projects (Fermilab Main Injector and B-factory at SLAC) on schedule. We would also give high priority to the Drell Report recommendation to participate in the LHC even without the bump, provided the budget is at least constant.

Question: Just two weeks ago there was a major announcement that scientists at Fermilab had discovered the top quark. What is the significance of this discovery, and why was the top quark so difficult to find?

Answer: The top quark is the sixth, most massive, and final quark to be found of the set of quarks which form the basis of the highly successful Standard Model of the elementary particles of matter. Its discovery is the crowning achievement of this magnificent scientific theory. The significance is similar to finding a missing element in the Periodic Table, an element central to the Table itself. Had we not found the top quark it would have meant that our ideas as summarized in the Standard Model, were very wrong and that the Model would have to be scrapped.

The reason it was so difficult to find was that the top quark turns out to be very massive, weighing as much as an atom of gold, and hence, it is created very rarely even at Tevatron energies. To find the top quark required the full energy of the Tevatron Collider at Fermilab combined with the full power of its detectors, the Collider Detector Facility (CDF) and the D-zero Detector, stretched to their limits. To find out more about the top quark and to elucidate its properties, will be a principal focus of Fermilab's experimental program for years to come, since it is the only accelerator in the world powerful enough to create top quarks. This experimental program will benefit greatly from the increased capabilities that will be provided by the Fermilab Main Injector upon its completion.

SUPERCONDUCTING SUPER COLLIDER TERMINATION

Question: Please update the subcommittee on the current situation at the former SSC site.

Answer: The SSC Termination continues to be on schedule and within the budget estimate for the defined termination scope. Major milestones have been accomplished as follows:

- o Personnel demobilization has occurred ahead of schedule.
- o Technical close-out activities are complete except for records disposition.
- o Subcontract close-out activities are on schedule. Of the 20 major subcontracts terminated, 16 settlement proposals have been received, three are due in March 1995, and one proposal has been settled.

- o Property dispositions were delayed pending the Texas Settlement, but are expected to be completed in 1995. Initial site stabilization was completed on schedule and a program plan for site restoration was provided to Texas for comment in December 1994.
- o Project definition studies for future on-site use of assets and DOE evaluation of these studies have been completed.
- o It presently appears that implementation of the settlement and the project termination process can be accomplished within existing SSC appropriations.

Question: What is the Department's role now and in the future at that site?

Answer: The Department's current role is to terminate the project in a timely, environmentally responsible manner, within the funds available. The Department has no current plans for a role at the site after the project is terminated.

HIGH ENERGY PHYSICS

Question: The High Energy Physics budget contains \$15 million for the Science Facilities Utilization Enhancement initiative. How will these funds be spread among the facilities, and how many additional hours of operation will these funds provide?

Answer: I will be pleased to provide the information for the record. (The information follows:)

SCIENTIFIC FACILITIES UTILIZATION ENHANCEMENT HIGH ENERGY PHYSICS

	FY 1996 Requested Increment <u>B/A \$000</u>	Additional Hours of <u>Operations</u>
Fermi National Accelerator Laboratory	\$ 8,000	470
Stanford Linear Accelerator Center	4,500	425
Alternate Gradient Synchrotron (BNL)	<u>2,500</u>	<u>520</u>
Total High Energy Physics	<u>\$ 15,000</u>	<u>1,415</u>

NUCLEAR PHYSICS

Question: The total budget request for Nuclear Physics for FY 1996 is \$321.1 million, about \$10 million below the FY 1995 appropriation. Although I understand the commitment to the program is about the same as in FY 1995, please explain why your budget has dropped?

Answer: The FY 1996 budget continues the research program at about a constant level and provides for increased utilization of six of our major user facilities. Operation of the LAMPF accelerator, however, is being transferred to Defense Programs stewardship, and funding for LAMPF operations has been requested in the Defense Programs part of the DOE

in the President's budget request, thereby reducing the Nuclear Physics budget request by about \$10 million below the FY 1995 appropriation.

Question: About a month ago, it was announced that scientists at Los Alamos had produced strong evidence that neutrinos do indeed have mass, and may be some of the most abundant matter in the universe. What is the significance of this discovery, and where will future neutrino research take place?

Answer: Using the LAMPF accelerator, Los Alamos National Laboratory scientists and scientists from 11 other institutions may have accumulated evidence for neutrino oscillations, where one type of neutrino transforms into another. The present understanding of the laws of physics assumes that neutrinos are massless. If final scrutiny of the data verifies the initial physics assumes that neutrinos are massless. If final scrutiny of the data verifies the initial finding, and the measurements are confirmed, this is direct evidence that neutrinos have a small but finite mass.

These results have broad and major implications (1) for modifying both the present theories of the structure of matter and our understanding of the laws of physics, (2) for explaining the apparent "missing mass" in the universe, the so-called "dark matter," which would keep the universe from expanding forever and which scientists so far have not found, and (3) for explaining the rate at which neutrinos from the sun strike the earth, which is in disagreement with models of how the sun works.

It may be possible to continue the Liquid Scintillator Neutrino Detector measurements at LAMPF if DOE Defense Program operation of that facility uses the high intensity proton beam in FY 1996. Two other major searches for neutrino oscillations are being proposed to the DOE High Energy Physics program, one at Brookhaven National Laboratory and the other at Fermi National Accelerator Laboratory.

Question: What funding level are you requesting for CEBAF?

Answer: The FY 1996 funding request for CEBAF includes \$60,020,000 for facility operations, and experimental and theoretical research. In addition, \$8,100,000 in Capital Equipment funds will be provided primarily to complete the CLAS detector in Experimental Hall B and for general use equipment and \$3,445,000 is being supplied in AIP/GPP funds; mostly for a backup cold box for the Central Helium Refrigerator, which supplies refrigerant to keep the accelerator superconducting. The total requested FY 1996 funding is \$71,565,000.

Question: Please describe the research to be carried out at that facility during FY 1996.

Answer: The initial CEBAF research program in FY 1996 will utilize the completed spectrometers and detectors in Experimental Hall C. Initial use of Experimental Hall A will also begin. In Hall C, eight experiments are planned which include detailed measurements of the electric charge distribution of the neutron, measurement of the electric charge distribution of the pion, electroproduction of kaons, photodisintegration of the deuteron looking for behavior which obeys theories of quark structure, and searches for exotic quark structures. In Hall A initial measurements will begin by measuring the electric charge distribution and exchange currents in ^3He .

Question: What is the status of the construction at RHIC?

Answer: In its fifth year of construction, the project is proceeding on cost and schedule. Civil construction is complete and contracts for all major collider components have been awarded, including the necessary industrially-produced superconducting magnets. Over 400

of the 1760 magnets required have been delivered and are being installed in the collider ring as they arrive. Fabrication of the two major detectors is well underway.

Question: What is the timeline for completion, and the total cost of the facility?

Answer: RHIC is scheduled to be completed in the 2nd Quarter of FY 1999 at a Total Construction Cost of \$475,250,000 and a Total Project Cost of \$595,200,000.

Question: Please describe any international collaborations currently underway in Nuclear Physics.

Answer: Major ongoing international collaborations involving DOE/Nuclear Physics supported researchers in projects outside the U.S. are the Sudbury Neutrino Observatory (SNO) in Canada, relativistic heavy ion and muon beams experiments at CERN/SPS in Switzerland, the Gallex and Sage solar neutrino experiments in Italy and Russia, and the HERMES experiment at DESY in Germany. Approximately 200 U.S. scientists will be involved in these and other smaller projects outside the U.S. in FY 1996.

Over 300 foreign scientists supported by their home institutions comprise about 15-20 percent of the user community that annually utilize the currently operating DOE/Nuclear Physics facilities and theoretical centers for research. Scientists from France, Italy, and former Soviet Union states are providing major items of equipment at CEBAF. Russian, German, and Japanese collaborators are contributing significant components to RHIC detectors, and England has transferred a \$3,000,000 spectrometer to the new RIB facility at ORNL for an astrophysics research program. In the future, when CEBAF, RIB, and RHIC are operating, the fraction of foreign users contributing to experiments at these facilities is expected to exceed 30 percent.

Question: What level of funding in your FY 1996 budget is for international research endeavors?

Answer: The estimated level of FY 1996 funding for international research endeavors is about \$7,000,000.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH HUMAN GENOME PROJECT

Question: Dr. Krebs, please update us on some of the latest developments in the Human Genome Project. We are aware of the recent breakthroughs in identifying the colon cancer and breast cancer genes. Are there other discoveries in store in the near future?

Answer: Yes, there are. The number of genes identified as being linked with causation of genetic diseases will continue to increase. Molecular clone resources produced by the DOE genome program will continue to play a key role in many new gene discoveries. We expect that several new disease gene discoveries will be made in the next several months.

In addition to these breakthroughs in gene discovery that are frequently reported in the popular press, there are also more subtle developments and breakthroughs that are going to have a broader impact on human health, biology and technology. We expect that the international effort now under way to obtain sequence and map information on human genes will result in a map of the vast majority of human genes in a few years. For example, a worldwide consortium called IMAGE, through the infrastructure at the Lawrence Livermore National Laboratory, is creating a freely accessible library of expressed human gene

fragments. These gene fragments will assist greatly in subsequent characterization of the human genome by researchers around the world. Researchers in DOE laboratories and universities are improving the technology and system integration that is needed for the incipient major shift in the genome project toward implementation of large-scale genomic DNA sequencing. These new technologies can be applied broadly in characterizing other organisms of industrial or environmental interest, and will have a major impact on the development of new applications of biotechnology.

For information gleaned from genome research to be broadly useful, there is a need for open access to this information and stable connections to other related research information. An open federation of several important biology databases is being developed that will aid in adding genome information to other biological information. This federation of biological data will aid in applying genome research to problems of human health, drug development, environmental biotechnology, and agriculture. It will also provide a greatly improved understanding of fundamental biological processes.

Question: The U.S. Human Genome Project is jointly funded by NIH and DOE. Please provide us with a description of the areas of research pursued by each agency.

Answer: The principal areas of research of the Department of Energy's Human Genome Program remain, as they have been consistently: the mapping and sequencing of the human genome, the development of the technologies necessary for the efficient and timely achievement of these goals; the support of the computational and database needs to store and analyze the volume of genome data being collected; and the study of certain ethical, legal, and social implications of genome research. An underlying theme of the Department's genome research effort is the construction of infrastructures and resources that, once built, will not need to be recreated. These infrastructures and resources will enable and allow the use of human genome information, resources, technologies, and computational capacities to address many other related investigations in biology, medicine, structural biology, biotechnology, and environmental studies, just to name a few of the areas of science expected to benefit from genome research.

The NIH Human Genome Program includes coordinated and complementary efforts towards some of the same ends, but has a distinct focus on the discovery of human disease-associated genes and the elucidation of their function. An additional interest of the NIH Genome Program is the sequencing of the genomes of several model organisms, e.g. *Escherichia coli* (a common bacterium), *Drosophila melanogaster* (the fruit fly), and *Caenorhabditis elegans* (a roundworm) all of which will provide valuable insights into the functioning of genes shared with human cells. The NIH program has focused more on the development of genetic maps while the DOE program has focused more on the development of the informatics and database tools necessary to accrue, handle, analyze, interpret, and distribute the vast amount of data the project is generating.

Question: In the original 5-year plan for the U.S. Human Genome Project, it was assumed that the funding level would have to be maintained at approximately \$200 million annually if the goal to complete the program in 15 years was to be reached. I now understand there are new 5-year goals. Have we kept pace with our funding and research goals?

Answer: Although the funding has not kept pace with original goals, the project is ahead of schedule. In FY 1995, the Human Genome Program of the Department of Energy has an operating budget of \$69,200,000 and the extramural program of the National Institutes of Health, National Center for Human Genome Research is funded at \$112,500,000, for a total of about \$181,700,000. The revised 5-year Human Genome Program goals, published in the October 1, 1993 issue of *Science*, reflect revisions that were the result of a coordinated joint planning process involving managers and scientists within both the Department of

Energy's and the National Institutes of Health's respective Human Genome Programs. The principal reason for revising the original 5-year plan goals was that unexpectedly rapid progress had been made on several of them. Specifically, the goals for **mapping** (the placement of unique markers on chromosomal diagrams, representing the location of these genes and/or markers) had progressed very well, with unique and easily measurable markers located, on average, every 2-5 million DNA bases (out of a genomic total of 3 billion). New technologies for cloning, manipulating, and ordering DNA fragments up to 1 million bases long have accelerated the physical mapping (arranging DNA fragments in the same order they occur on the native chromosomes) of the human genome. Advances in direct DNA sequencing, while not yet permissive of sequencing the entire genome efficiently or inexpensively, have nonetheless progressed to the point where the overall goal of elucidating a human sequence by 2005 is thought to be within reach. The high resolution maps of several entire chromosomes, including chromosome 16 (from work done at the Los Alamos National Laboratory) and chromosome 19 (from work done at the Lawrence Livermore National Laboratory) have been completed and these maps are ready to be used for the sequencing of these chromosomes.

Question: Will the project be completed by the year 2005, as originally projected or are we ahead of schedule?

Answer: As noted in the editorial in the October 14, 1994, issue of *Science* the genome project is currently ahead of schedule and on budget. However, for the project to be completed in 2005, as originally envisioned, technologies must continue to advance methods of genomic sequencing (e.g. direct sequencing of the entire genome of 3 billion DNA bases). Methods for short range sequencing, suitable for genetic screening for disease genes, are making exciting progress. Significant commercial interest has emerged in the application of these technologies. Computational analytic methods are improving and the characterization of DNA sequence for its biological information content continues to improve. New disease genes continue to be identified (most recently the BRCA-1 region involved in some cases of hereditary breast cancer). It should not be lost sight of, however, how ambitious the Human Genome Project really is; the human genome contains about 3 billion DNA bases and current estimates are that the human genome contains some 80,000 genes (currently some 5,000 genes have been mapped). There remains a long way to go in mapping, sequencing, technology development, computational biology research, gene discovery, and, not least, the studies of the ethical, legal and social implications of genome research so that society may realize its benefits and as few as possible of its concerns.

Question: What funding level for the Human Genome Project are you requesting in your FY 1996 budget?

Answer: The fiscal year 1996 funding request for the Human Genome Project is \$78,545,000, including \$2,800,000 in Capital Equipment and \$5,700,00 for construction of the Human Genome Laboratory at the Lawrence Berkeley Laboratory.

Question: Please provide a breakout of the funding level each national laboratory will receive in FY 1996.

Answer: Current projections for each National Laboratory will be provided for the record. (The information follows:)

Funding for National Laboratories
(B/A in Thousands)
Operating Expenses

<u>Laboratory</u>	<u>FY 1996</u>
Argonne National Laboratory	\$ 2,310
Brookhaven National Laboratory	1,352
Lawrence Berkeley Laboratory	10,325
Lawrence Livermore National Laboratory	9,363
Los Alamos National Laboratory	10,767
Oak Ridge National Laboratory	3,089
Pacific Northwest Laboratory	332
Ames Laboratory	269

The above figures do not include distribution of \$2,800,000 of capital equipment funds or the \$5,700,000 for continuation of construction of the Human Genome Laboratory at the Lawrence Berkeley Laboratory.

Question: In the first five years of the project, it was assumed that in order to achieve the objectives of the program by the year 2005, substantial improvements in technology would be needed, especially in DNA sequencing. Has that assumption turned out to be correct, and if so, what technological improvements have been made so far?

Answer: Yes, the rapid advances made in the program have resulted from significant improvements in technology. Technology improvement will continue to be an essential component of the program. Major accomplishments have been highly dependent on improvements in chemistries, robotics, computational support systems and a variety of special purpose instruments. Genomics laboratories, unlike most biological laboratories, demand the use of robots and powerful laboratory information systems to handle the large amounts of material and information. A second generation of sequencing instruments is now entering service and some have already stimulated new commercial products or startup companies. The newer sequencing systems feature higher speeds and/or greatly increased parallelism in sample processing.

Question: In a recent issue of Science magazine, it was reported that two genome scientists, John Sulston and Robert Waterston, announced that the goal of sequencing the 3 billion bases in human DNA can be achieved as early as the year 2001, five years ahead of schedule. They also announced that this could be done without any new technology. Has the Department of Energy had time to examine these scientists' theory? If so, do you agree with them?

Answer: Yes, DOE managers and DOE-supported scientists have taken part in the presentations and discussions surrounding the Sulston/Waterston proposal. Discussions of this and related proposals have been conducted for several years in the genome community. We agree in part with this concept, but this is a complex subject and it is the opinion of many that the proposal ignores some major uncertainties. DOE managers and advisors have held two meetings to discuss this and related approaches and are planning a larger workshop to be held in May to further explore the strengths and weaknesses of these ideas.

The usual approach today to high accuracy sequencing requires that each region of DNA be sequenced many (perhaps 8-10) times. This type of sequencing is being conducted for several model organisms and it has generally been thought that the human genome would also be sequenced by these procedures. The proposal discussed in Science is to conduct so-called low pass sequencing of the human genome. This would result in sequence information of

lower accuracy and coverage but, it is argued, would provide enough information so that genes and other important information could be identified and located with the aid of computerized analysis. Furthermore, such lower quality sequence information could be generated for the entire human genome at a relatively low cost and could be utilized by the large world-wide biological community. Thus, this approach would "democratize" the genome project by allowing scientists around the world to access and further characterize the regions of their interest. We believe that there is considerable merit to ideas of this type, although we and our advisors are not yet convinced of all particulars of the Sulston/Waterston proposal.

The Sulston/Waterston proposal seems to neglect the need to map the clones which are to be sequenced. There are also several other technical uncertainties. In our opinion, there is a need for more consideration and some pilot scale projects to explore variations on this proposal.

Regarding the need for new technology, it should be noted that the Waterston laboratory is using the latest sequencing machines not yet available to most laboratories. Also, more advanced sequencing machines will be marketed within two more years. There has been significant increase in sequencing throughput already, and this trend is sure to continue. We believe Bob Waterston meant that there is no need for revolutionary new sequencing technology; the advances in the pipeline will allow this first rough sequencing of the genome to be completed at a relatively low cost.

It should be recognized that the Sulston/Waterston approach would not yield highly accurate sequence data for the entire human genome. That would remain to be accomplished. However, unlike for model organisms, we will be sequencing and comparing human genomes as long as there are humans and physicians. The argument is that it is a better strategy at this time to generate sequencing information that will quickly yield most of the desired information.

Question: As of today, what is the cost of sequencing per base pair and what is the total projected cost of the sequencing.

Answer: The cost depends on the positional information, completeness, and accuracy desired. Initial sequencing without positional information can now cost as little as a few cents per base pair, but redundancy is obligatory to assure accuracy and support extensions and joining of adjacent sequences. For small microbes, without the complexities of repeating sequences and related gene families that characterize the human genome, assembling the sequence into complete genome sequence costs about 50 cents per base pair. Human DNA has several types of sequence complexities that can increase these costs tenfold. If today's technology was frozen, completing the human genome would probably cost somewhat over one billion dollars, depending on the completeness and accuracy desired. It is the DOE's strategy, however, to implement robust strategies and extensive systems integration. Thus, the expensive and limiting "hands on" human participation will progressively be replaced with concomitant reductions in cost.

Question: Now that the maps of chromosomes 16 and 19 are essentially complete, what are the primary Human Genome Project activities currently pursued at Los Alamos and Lawrence Livermore?

Answer: The high resolution maps of chromosomes 16 and 19 today represent the world's largest resource of accurately positioned and overlapping DNA clones. One major current activity is to locate the gene sites on these DNAs. This is being achieved by a combination of DNA sequencing and other methodologies. Also, the highly developed

mapping skills are being applied to chromosomes 2 and 5. The laboratories continue to fulfill broad service functions to the biological scientists from around the world. The clone libraries for single chromosomes are still in great demand by teams mapping other chromosomes. Computational resource assistance is provided to several distant sites, and there are many collaborations on gene function with academic scientists founded on the detailed 16 and 19 maps.

Both Los Alamos and Livermore are devoting increasing resources to developing major sequencing capabilities.

Question: What portion of your FY 1996 budget request will be committed to the ELSI (ethical, legal and social implications) program of the Human Genome Project?

Answer: As it has for the past four years, the ELSI component of the Department of Energy's Human Genome Program will receive 3 percent of the Human Genome Program operating budget. In FY 1996, it is anticipated that this will amount to \$1,950,000. The foci of the Department's ELSI activities remain the areas of privacy and confidentiality of personal genetic information, and genome science and ELSI education.

Question: Please describe the new Microbial Genome Initiative.

Answer: The goal of the Microbial Genome Initiative is to obtain the DNA sequence of microbes of environmental, industrial and evolutionary significance. This fundamental information will stimulate new research into practical applications of these microbes. One of the goals of the Department's biological programs is to foster the application of genomic sciences into other DOE mission areas.

Question: How is it related to the Human Genome Project, what are the goals of the initiative, and what funding level are you requesting for the project in the FY 1996 budget?

Answer: The Initiative can be considered a spinoff of the Human Genome Project as it depends on the advanced sequencing and related capabilities that have been generated by those institutions conducting the research. In an article in the February 6, 1995 issue of The Scientist, the President of the American Society for Microbiology said, "The microbial diversity (of the program) is an absolute treasure trove for biotechnology, ecology, evolution and bioremediation." We are requesting \$3,000,000 for the program in FY 1996.

GLOBAL CLIMATE CHANGE

Question: Please describe the current research efforts associated with the Global Climate Change program.

Answer: The research efforts in BER's climate change research program are directed at improving prediction of the rate and magnitude of climate change due to human-induced changes in atmospheric composition, especially increases in energy-related, radiatively active trace gases and aerosols, and to improve the scientific basis for assessing the potential consequences of human-induced climatic and atmospheric changes. The efforts include research to determine the atmospheric characteristics (e.g., role of clouds, aerosols, water vapor) responsible for the Earth's radiation balance and to improve how the properties and processes that influence the balance are captured in models used to predict climate. The efforts also include research: (1) to develop the next generation of models for predicting climate by developing mathematical formulations and software that use the extensive parallelism of the emerging generation of computers and using improved algorithms; (2) to improve understanding of the processes controlling sources and sinks of atmospheric carbon

dioxide (CO₂) in the terrestrial biosphere and oceans, including ocean margins; (3) to improve ocean circulation models used for climate research, focusing particularly on questions of heat transport in the ocean; (4) to determine decade to century climate sensitivity to increasing concentrations of greenhouse gases and aerosols; (5) to identify why there is disagreement in climate predictions between the different climate models and provide the foundation for model improvements; (6) to identify major linkages and feedbacks between the atmosphere, ocean, terrestrial biosphere, and cryosphere that affect the climate; (7) to improve understanding of the response of terrestrial ecosystems to atmospheric climatic changes; and (8) to develop an integrated framework for assessing the potential economic consequences of human-induced global climate change and for comparing the costs and benefits of different policy options that are intended to ameliorate potential adverse impacts of climate change. Finally, the effort includes research to provide understanding and information on processes controlling ozone and UV-B trends in mid-latitudes, including pollution influences on stratospheric ozone, the role of heterogeneous chemistry, and improved analysis of ozone and UV-B variation and trends.

Question: What level of funding is requested in your FY 1996 budget for this program?

Answer: Funding for BER's climate change research in FY 1996 is \$123,495,000.

Question: What specific activities under the Environmental Research subprogram relating to Global Climate Change will be pursued in FY 1996?

Answer: BER is pursuing three activities under the Environmental Research subprogram that relate to Global Climate Change. One activity is the Ocean Margins Program which is intended to quantify the role of the coastal ocean as a sink for atmospheric CO₂ and to describe the major processes controlling the uptake and ultimate sequestration of carbon by the coastal oceans. It is an essential component of research to understand the fate of CO₂ from fossil fuel combustion. The second activity is the Program for Ecosystem Research (PER) which is intended to improve understanding of the responses of terrestrial organisms and ecosystems to changes in climate and atmospheric composition and to determine the biological and ecological mechanisms controlling the observed responses. It is an essential component of research to understand the capacity of terrestrial organisms and ecosystems to adapt to climatic and atmospheric changes. The third activity is the Atmospheric Sciences Program which is intended to provide understanding and information on processes controlling ozone and UV-B trends in mid-latitudes, including pollution influences on stratospheric ozone, the role of heterogeneous chemistry, and improved analysis of ozone and UV-B variation and trends. Ozone not only absorbs ultraviolet radiation but is also a greenhouse gas. Understanding ozone trends and the processes controlling ozone levels in the atmosphere is essential for assessing the effects of human activities on ozone formation and destruction.

Question: Please provide a breakout of the funding for Global Climate Change by national laboratory and university for FY 1995 and FY 1996, if possible.

Answer: A funding breakdown is provided for the record. (The information follows:)

GLOBAL CLIMATE CHANGE

(B/A in thousands)
FY 1995 FY 1996

OPERATING EXPENSES LABORATORY

ARGONNE NATIONAL LABORATORY	\$ 2,069	\$ 2,107
ATMOSPHERIC TURBULENCE DIFFUSION LABORATORY	242	330
BROOKHAVEN NATIONAL LABORATORY	6,223	6,180
ENVIRONMENTAL MEASUREMENTS LABORATORY	1,749	1,749

(B/A in thousands)
FY 1995 FY 1996

OPERATING EXPENSES

LABORATORY

LAWRENCE BERKELEY LABORATORY	492	150
LAWRENCE LIVERMORE NATIONAL LABORATORY	6,578	6,055
LOS ALAMOS NATIONAL LABORATORY	4,809	4,796
OAK RIDGE INSTITUTE FOR SCIENCE & EDUCATION	2,826	2,900
OAK RIDGE NATIONAL LABORATORY	6,219	6,220
* PACIFIC NORTHWEST LABORATORY	21,935	22,795
SANDIA NATIONAL LABORATORY	1,335	1,400
WESTINGHOUSE SR COMPANY	<u>148</u>	<u>300</u>
 SUBTOTAL LABORATORIES	 \$ 54,625	 \$ 54,982

(B/A in thousands)
FY 1995 FY 1996

INSTITUTION

ADVANCED RESEARCH PROJECTS AGENCY	\$ 75	\$ 0
AERODYNE RESEARCH, INC	150	151
ALABAMA, UNIVERSITY OF	259	260
ARIZONA, UNIVERSITY OF	285	292
ATMOSPHERIC & ENVIRONMENTAL RESEARCH	635	641
BERN, UNIVERSITY OF	58	0
BOSTON UNIVERSITY	111	111
BROWN UNIVERSITY	450	521
CALIFORNIA, UNIVERSITY OF	14,281	14,021
CARNEGIE MELLON UNIVERSITY	250	250
CHICAGO OPERATIONS OFFICE	1,000	1,000
COLORADO STATE UNIVERSITY	1,234	1,314
COLORADO, UNIVERSITY OF	1,060	1,069
COLUMBIA UNIVERSITY	1,022	1,099
COMMERCE, U.S. DEPT. OF	687	743
COMMONWEALTH SCIENCE & INDUSTRY RESEARCH ORG.	85	80
DELAWARE, UNIVERSITY OF	188	188
DENVER, UNIVERSITY OF	134	140
DESERT RESEARCH INSTITUTE	150	130
DUKE UNIVERSITY	405	0
EAST ANGLIA, UNIVERSITY OF	150	200
ELECTRIC POWER RESEARCH INSTITUTE	20	20
ENVAIR	191	190
FLORIDA STATE UNIVERSITY	80	80
GEORGIA UNIVERSITY OF	5	0
HARVARD UNIVERSITY	224	233
HAWAII, UNIVERSITY OF	175	195
IOWA STATE UNIVERSITY	0	180
IOWA, UNIVERSITY OF	119	124
KANSAS STATE UNIVERSITY	0	255
MAINE, UNIVERSITY OF	100	100
MARINE BIOLOGICAL LABORATORY	274	274

(B/A in thousands)
FY 1995 FY 1996

INSTITUTION

MARYLAND, UNIVERSITY OF	900	900
MASSACHUSETTS INSTITUTE OF TECHNOLOGY	578	581
MASSACHUSETTS, UNIVERSITY OF	440	449
MIAMI, UNIVERSITY OF	356	397
MICHIGAN, UNIVERSITY OF	135	135
MINNESOTA, UNIVERSITY OF	100	100
MISSION RESEARCH CORPORATION	151	183
MONTEREY BAY AQUARIUM RESEARCH INSTITUTE	100	100
NATIONAL ACADEMY OF SCIENCES	100	50
NATIONAL AERONAUTICS & SPACE ADMINISTRATION	1,285	1,290
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION	1,387	1,258
NATIONAL SCIENCE FOUNDATION	1,952	2,261
NAVAL POSTGRADUATE SCHOOL	197	188
NAVAL RESEARCH LABORATORY	231	230
NEBRASKA, UNIVERSITY	89	89
NEVADA, UNIVERSITY OF	144	144
NEW YORK, STATE UNIVERSITY OF	2,057	2,027
NORTH CAROLINA STATE UNIVERSITY	230	230
NORTH CAROLINA, UNIVERSITY OF	130	130
NORTHERN ARIZONA UNIVERSITY	194	200
OFFICE OF ENVIRONMENTAL ANALYSIS	9	0
OHIO STATE UNIVERSITY	61	61
OREGON GRADUATE CENTER	408	427
OREGON STATE UNIVERSITY	205	205
OREGON, UNIVERSITY OF	182	182
PENNSYLVANIA STATE UNIVERSITY	667	667
PITTSBURGH, UNIVERSITY OF	75	75
PRINCETON UNIVERSITY	622	825
RESEARCH SUPPORT INSTRUMENTS	95	99
SAN DIEGO STATE UNIVERSITY	398	398
SANTA FE INSTITUTE	57	57
SKIDAWAY INSTITUTE OF OCEANOGRAPHY	555	555
SMITHSONIAN INSTITUTION	0	683
SOUTH CAROLINA, UNIVERSITY OF	70	0
SOUTH FLORIDA, UNIVERSITY OF	60	60
SOUTHERN MISSISSIPPI, UNIVERSITY OF	130	130
SRI INTERNATIONAL	200	200
STANFORD UNIVERSITY	208	183
STATE DEPARTMENT, U.S.	50	50
TEXAS A&M RESEARCH FOUNDATION	171	179
TEXAS A&M UNIVERSITY	310	310
TEXAS ENGINEERING EXPERIMENT STATION	108	110
TEXAS, UNIVERSITY OF	71	71
TUFTS UNIVERSITY	70	70
UTAH, UNIVERSITY OF	262	277
VIRGINIA INSTITUTE OF MARINE SCIENCE	100	100
WASHINGTON, UNIVERSITY OF	60	0
WESTERN WASHINGTON UNIVERSITY	107	107
WISCONSIN, UNIVERSITY OF	639	620

INSTITUTION	(B/A in thousands)	
	<u>FY 1995</u>	<u>FY 1996</u>
WOODS HOLE OCEANOGRAPHIC INSTITUTION	1,300	1,265
UNDETERMINED ^{a/}	<u>16,212</u>	<u>16,444</u>
SUBTOTAL OFFSITE INSTITUTIONS	<u>\$ 58,075</u>	<u>\$ 59,213</u>
TOTAL OPERATING EXPENSES	\$ 112,700	\$ 114,195
CAPITAL EQUIPMENT		
PACIFIC NORTHWEST LABORATORIES	8,578	9,300
UNDETERMINED ^{a/}	<u>1,313</u>	<u>0</u>
TOTAL CAPITAL EQUIPMENT	<u>\$ 9,891</u>	<u>\$ 9,300</u>
TOTAL GLOBAL CLIMATE CHANGE	<u>\$ 122,591</u>	<u>\$ 123,495</u>

^{a/} To be distributed to academic institutions and national laboratories, pending decisions on merit reviews of proposals.

* A significant portion of the funds identified to PNL are distributed to other institutions under subcontracts related to the ARM program.

Question: Please describe the Computer Hardware, Advanced Mathematics and Model Physics (CHAMMP) program.

Answer: The Computer Hardware, Advanced Mathematics and Model Physics Program is intended to develop the next generation of models for predicting climate by developing mathematical formulations and software that use the extensive parallelism of the emerging generation of computers and using improved algorithms that have been thoroughly verified with comprehensive sets of field observations. Predicting the future climate responses to increasing atmospheric concentration of anthropogenic emissions will require climate models capable of much longer and more numerous simulations, finer resolution, and significantly better representation of the physics and chemistry of the climate system than presently available. The CHAMMP Program is designed to address these needs. The program is designed to take advantage of the computational capabilities that are being developed as part of the Federal High Performance Computing and Communications Program.

Question: What funding level is requested for CHAMMP?

Answer: In FY 1996, \$10,857,000 is requested for CHAMMP.

Question: Where is the CHAMMP program located?

Answer: The CHAMMP program is funded under the Biological and Environmental program's Carbon Dioxide Research subprogram. Funds from the CHAMMP Program are going to universities, the Department's national laboratories, other government laboratories and private, non-academic research facilities. In FY 1995, approximately 75 percent of the CHAMMP funding was at DOE national laboratories, 18 percent was in academic institutions, and the remaining 7 percent in other government laboratories and private (i.e., non-government, non-academic) research institutions. In FY 1996, 72 percent of CHAMMP funding will be at DOE laboratories, 20 percent in universities and 8 percent in other government laboratories and private research institutions. Principal CHAMMP research activities are being conducted at Oak Ridge National Laboratory, Argonne National Laboratory, Lawrence Livermore National Laboratory, Pacific Northwest Laboratory, Los Alamos National Laboratory, National Center for Atmospheric Research, Naval Postgraduate School, Naval Research Laboratory, and several universities including Colorado State University, University of California at Los Angeles, Massachusetts Institute of Technology, Harvard University, University of California at San Diego, Iowa State University, University of Maryland, University of Wisconsin, Rutgers University, University of Arizona, and the University of Miami.

Question: Please describe the operations of the National Institute for Global Environmental Change (NIGEC).

Answer: NIGEC is operated for the Department by the University of California's Office of the President through a Cooperative Agreement. It consists of a National Office located at the University of California in Davis and six regional centers. Research relevant to BER's climate change research priorities is funded in academic institutions through the six regional centers. The six regional centers are (1) the Northeast Center at Harvard University in Cambridge, (2) the Midwest Center at Indiana University in Bloomington, (3) the Southeast Center at The University of Alabama in Tuscaloosa, (4) the Southcentral Center at Tulane University in New Orleans, (5) the Great Plains Center at the University of Nebraska in Lincoln, and (6) the Western Center at the University of California in Davis. Each regional center solicits proposals from academic institutions within their region. The proposals are reviewed for scientific merit by panels of experts within the region. Meritorious proposals recommended for funding by each regional center director are submitted to DOE for review for relevance to the DOE priorities. Once approved, funds are transferred from DOE to the University of California. The University of California then subcontracts to each of the regional centers to fund the groups of proposals approved for funding by DOE. The regional centers then transfer the funds through a subcontract to the individual investigators in universities within their respective regions.

Question: Do other Federal agencies other than DOE contribute to its operations?

Answer: No other Federal agencies contribute to the operation of NIGEC.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH

Question: What level of funding is requested for Environmental Technology Partnerships, and under which subprograms will the funds be distributed?

Answer: The proposed Environmental Technology Partnerships initiative is a joint venture between the Office of Energy Research and the Office of Energy Efficiency and Renewable Energy (EE). Of the requested \$39,720,000 in FY 1996, \$15,720,000 will be allocated to EE and \$24,000,000 to ER. Within Energy Research, the funding breakdown will be:

	FY 1996 Request <u>(B/A)</u>
<u>Basic Energy Sciences</u>	
Materials Sciences	\$ 5,000,000
Chemical Sciences	3,880,000
Engineering and Geosciences	2,400,000
Advanced Energy Projects	720,000
Energy Biosciences	3,000,000
Applied Mathematical Sciences	<u>3,000,000</u>
Total Basic Energy Sciences	\$ 18,000,000
<u>Biological and Environmental Research</u>	
Environmental Research	<u>\$ 6,000,000</u>

<u>Basic Energy Sciences</u>	<u>FY 1996 Request (B/A)</u>
Total Biological and Environmental Research	<u>\$ 6,000,000</u>
Total, Office of Energy Research	<u>\$ 24,000,000</u>

Question: What will be the focus of the initiative?

Answer: The focus of the initiative is for research which will enhance our national industrial competitiveness while reducing the unwanted environmental impact of industrial production and its associated energy consumption. In bioremediation/biotechnology, the funding will support a range of experimental and computational structural biology studies focused on developing enzymatic systems and genetically engineered organisms that will be useful both in restoration of contaminated sites and in the management of waste stream effluents as they are produced. Research for integrated assessment will develop methodologies for performing risk assessments of a variety of environmental impacts.

Question: Will any of the funds be used for CRADAs or other technology transfer activities? If so, how much?

Answer: The Office of Energy Research will consult with industry for assistance in identifying areas of fundamental research that are most appropriately addressed by the Department but that will contribute to sustainable development and to pollution prevention technologies, as well as to remediation technologies.

Question: Have any industrial partners been identified?

Answer: As of this date, no specific industrial partners have been identified.

Question: Please describe the computational biology program you plan to initiate in FY 1996.

Answer: The goal of the Computational Biology Research Initiative, which crosses all research activities in BER, is to link the ongoing revolution in the biological sciences with that in computer and information science, in order to understand, predict, and design the biological function and activity of biomolecules.

Computational biology builds on several experimental, computational, and infrastructural strengths of the Department; the BER research programs in genome and structural biology provide research expertise and a unique infrastructure for computational biology. The supporting infrastructure of the Department includes large-scale genome analysis facilities, data resources for biological information, advanced computing facilities, and the advanced synchrotron and neutron sources.

The objective of this initiative is to link the revolution in computer and information science with the revolution in modern biology, using the tools of computational biology to provide insights into research problems too complex for traditional analysis. The inherent complexity of living systems makes the computer an ideal tool for research in biotechnology and fundamental biology.

Existing computational biology funding within BER includes research supported within the genome project and the programs in medical applications and health effects. To understand and exploit the rapidly increasing structural biology and genome data, and expand our efforts to reach out to other Departmental Programs, a focused, integrated computational biology effort is required.

The research developed through the computational biology program will partner with and contribute to programs in Basic Energy Sciences and Applied Mathematical Sciences. Over the longer run, the basic science will also contribute to the applied Departmental programs, particularly through an impact on the utility of bioremediation strategies; it will also complement, but does not overlap, ongoing Computational Biology Programs and activities funded by other agencies, such as NSF or ONR, which focus on their mission areas.

The ability to predict the functions of biological molecules will be a key factor in the application of biotechnology to diverse areas of national need, including the health consequences of environmental contamination, medical applications and molecular nuclear medicine, enhanced uses of bioremediation techniques, approaches to structure-based drug design and new DNA and protein based pharmaceuticals and agents for the diagnosis and treatment of cancer, the development and improvement of biofuels, and industrial processes.

These studies will also complement research on understanding the response of organisms to environmental change, a biological component of the global change program.

The \$3,000,000 computational biology increment in FY 1996 will focus on understanding structural-function relationships in biology, providing an immediate opportunity for DOE that is unique in the federal government and that will address fundamental research problems that have direct, commercial implications. Given the critical, central role that it represents to the future of biology and technological developments in medicine, an expanded, ongoing effort in computational biology research must be an ongoing, expanding effort for the foreseeable future.

Question: Is the program associated with the Human Genome Project?

Answer: Yes, a focused effort in computational biology, while broader in scope, will enhance DOE's efforts to exploit the information derived from the genome project for medical and biotechnology applications. In general, understanding and utilizing the sequence data from the genome project requires the implementation of newly developed, advanced information and computer technologies.

Question: Your FY 1996 budget includes \$3 million for initial funding of the Advanced Biomedical Science and Technology initiative. Please describe this initiative, including the collaboration with Defense Programs' Office of Economic Competitiveness.

Answer: The advanced biomedical science and technology initiative proposed in FY 1996 will develop a health care technologies program that will apply unique multidisciplinary capabilities of the Department's Energy Research and Defense Programs laboratories in partnership with academia, the private sector, and other Federal agencies to meeting the technological and computational challenges necessary to improve the quality of the Nation's health care and reduce its cost. Specifically, the initiative will focus on the development of innovative, cost-effective approaches to early presymptomatic diagnosis and monitoring of disease and disorders. This will include biological markers and molecular probes, instrumentation for sensing and imaging of body structure and function, minimally invasive physiological sensors, and computational infrastructure required for implementation.

Question. Which national laboratories will be involved in this effort?

Answer: Most of Energy Research's laboratories (Brookhaven National Laboratory, Oak Ridge National Laboratory, Lawrence Berkeley Laboratory, Pacific Northwest Laboratory, Argonne National Laboratory) and Defense Programs laboratories (Los Alamos National Laboratory, Lawrence Livermore National Laboratory, Sandia National Laboratory) are expected to contribute toward the objective of this initiative. This initiative will be very closely coordinated with the Department's Defense Programs and Energy Research's technology transfer program.

Question: What is the status of the Biomedical Tracer Facility?

Answer: The National Academy/Institute of Medicine's study on the need for a National Biomedical Tracer Facility has been completed, and the final report, "Isotopes for Medicine and the Life Sciences," has been released to the Department and the public. The report concluded that a dedicated stand-alone facility is required to meet the large proton accelerator radioisotope need of the U.S.

In FY 1994, the Department, with Congressional encouragement, awarded grants of \$300,000 to each of five institutions, the University of Alabama; the University of Texas; the University of Southern California; the University of California, Davis, and Purdue University, for the undertaking of National Biomedical Tracer Facility Project Definition Studies. On March 27 and 28, 1995, the reports from these studies were evaluated, at the Department's request, for scientific and technical merit by a panel of experts assembled for this purpose. The review did not, and was not intended to result in the selection of a project "winner" or a site for a National Biomedical Tracer Facility.

For FY 1995, conference report language indicated that \$3,000,000 in the Biological and Environmental Research appropriation was provided to enable the Department to proceed with the Conceptual Design phase for the Facility by expanding the Project Definition studies to include site-specific designs and program plans. Action with respect to any such expansion is on hold at this time, pending the Department's decision on whether to pursue one of the Project Definition study alternatives or to pursue a concept, developed by the Brookhaven National Laboratory at the Department's request, to upgrade the existing Brookhaven isotope-production facility to meet identified national needs. To facilitate the overall process, the Department has extended the Project Definition Study grants, at no cost, from February 15, 1995 to June 15, 1995, at which time the Department expects to have reached a decision.

Question: Boron Neutron Capture Therapy research has received a great deal of attention in recent weeks. Please describe the status of the program, especially the clinical trials at Brookhaven National Laboratory.

Answer: The Department of Energy conducts a comprehensive Boron Neutron Capture Therapy research program addressing the key issues necessary to bring the treatment into normal medical practice. Research includes development of new boron labeled compounds, alternative neutron sources, preclinical biological and animal studies, and human clinical trials. Two human clinical trials are currently in progress, both in full compliance with the regulations of the Food and Drug Administration; a Phase I safety study of melanoma skin cancer treatment at the New England Medical Center in collaboration with the Massachusetts Institute of Technology and a combined Phase I/Phase II trial of safety and effectiveness for treatment of glioblastoma multiform brain cancer at the Brookhaven National Laboratory in collaboration with the Beth Israel Medical Center. In the melanoma study, to date three patients of a planned fifteen have been treated with no indication of any adverse effects. In the glioblastoma trial at the Brookhaven National Laboratory, treatment of 28 patients is

planned. The Laboratory has established a registry for the screening and enrollment of prospective patients. Two have been treated to date with no adverse findings.

Question: Considering the criticism leveled at DOE last year for its handling of the BNCT program, it is surprising that the FY 1996 request is less than FY 1995. Are you confident that the requested amount of \$9.461 million is sufficient to operate and advance the program?

Answer: The requested amount is adequate to maintain the ongoing program which addresses the key research needs with emphasis on clinical trials.

Question: Please provide the status of the construction of the Environmental Molecular Sciences Laboratory at the Pacific Northwest Laboratory.

Answer: Construction on the Environmental Molecular Sciences Laboratory began in March, 1994. It is on schedule, with physical plant construction scheduled for completion in fourth quarter, 1996, and project completion scheduled for fourth quarter, 1997.

QUESTION SUBMITTED BY SENATOR BURNS

Steam Engine Technology for Cogeneration

Question: I have an article that discusses the merits of steam engine technology for cogeneration. Is your office conducting, or does it plan to conduct, research on steam engine development? If not, why? If so, could you give me an update on the research?

Answer: Cogeneration is defined as the production of two or more energy forms from one fuel. In the most widely used configuration, fuel is burned in a gas turbine, which drives an electric generator. The engine exhaust is directed to a steam boiler. The steam produced can then be used in a steam turbine powering another generator (known as combined cycle) or for process heating or space conditioning. A steam engine is an important part of many cogeneration systems.

The Office of Industrial Technologies is currently funding a program with Innovative Steam Technologies, Inc. to develop and test an advanced, 4000 kW, back-pressure steam turbine. Known as the High Performance Steam Turbine, it will be capable of utilizing 1500 °F, 1500 psig steam. Currently, steam turbines are limited to about 1100 °F inlet temperatures by materials issues related to both the steam generator (boiler) and the turbine. If successful, this technology will increase the efficiency of the turbine by 5 percent and permit the generation of 22% more electricity over the state-of-the-art steam turbines for the same steam flow. Compared to U.S. standard technology utilizing 750 °F and 600 psig steam, the HPST will more than double both power output and turbine efficiency. The prototype is scheduled for a 100 hour check-out test starting in June of this year. Negotiations are underway for a 1000 hour field test, with Argonne National Laboratory as the host. The industry cost share will be \$5.5 million of the estimated \$7.4 million field test cost. The field test and program will be completed with funds to be requested in FY 1997. This turbine can be used in the thousands of existing steam systems or as part of new advanced cogeneration systems.

SUBCOMMITTEE RECESS

Senator DOMENICI. Thank you, the subcommittee will stand in recess until 2 p.m. tomorrow.

[Whereupon, at 10:57 a.m., Tuesday, March 14, the subcommittee was recessed, to reconvene at 2 p.m., Wednesday, March 15.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 1996

MONDAY, APRIL 3, 1995

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 2:33 p.m., in room SD-116, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici and Gorton.

Also present: Senator Bingaman and Congressman Schiff.

DEPARTMENT OF ENERGY

KIRTLAND AFB, NM, REALIGNMENT

STATEMENTS OF:

DR. VICTOR H. REIS, ASSISTANT SECRETARY FOR DEFENSE PROGRAMS

BRUCE TWINING, MANAGER, ALBUQUERQUE OPERATIONS OFFICE

OPENING STATEMENT OF SENATOR DOMENICI

Senator DOMENICI. The subcommittee will come to order.

Actually, let me explain why this subcommittee is meeting and who is here this afternoon. First of all, I am chairman of the Subcommittee of the U.S. Senate Appropriations Committee called Energy and Water Development. I think some of you know that subcommittee is responsible for a great deal of the funding of the DOE programs, projects, and activities being done on behalf of the Department of Defense.

In addition, there are some programs that are straight DOE funded activities, and we handle those, too, including much of the work for Department of Defense which comes through this subcommittee. It seemed to me that the New Mexico delegation has a very serious interest in whether or not the Department of Defense and the Air Force handle this realignment in a proper way, and I thought it more than just casually relevant that this subcommittee find out whether some substantial portion of the costs that are being alleged by the Defense Department as savings, whether those were real savings or not.

Frankly, I do not believe we ought to go through realignments just to go through them. I believe we ought to save the taxpayers money unless there is some compelling reason to the contrary.

Now, it has come to our attention that the Department of Defense may not have calculated the savings for this change properly, because we believe over \$30 million of the alleged \$64 million annual savings starting in the seventh year—that is currently what the Defense Department is saying, is not actually a savings. So, after all the transition work and investing \$272 million up front, DOD believes they will start saving \$64 million a year. I do not believe that estimate is any good, because about \$30 million to \$35 million of that savings is going to be nothing more than shifting costs from DOD to the Department of Energy.

Now, understand, that the Department of Defense and other agencies of Government do not always concern themselves with whether it is going to cost another department of Government. But in this case it is very interesting. The position of the Defense Department is very narrow, because the Department of Energy undertakes work for the Department of Defense. So truly, if there is \$30 million to \$35 million that is really not saved but shifted to DOE, they are not savings but costs shifted from the Department of Defense that DOE will be required to make up.

AIR FORCE COST ESTIMATES

So right up front, it seems to me, Senator Bingaman and Representative Schiff, that the cost estimates that the Air Force has put forth are no good. I think they are 50 percent off on what we will hear today on recurring cost savings, and on capital investment the Air Force says they are going to have to invest \$277 million up front. The Department of Energy tells us that they are going to have to spend \$64 million up front if they have to take this over, so that is one-fourth—one-fourth off the mark there, and one-half off the mark on operations money.

Now, I regret to say that it was not too long ago that we went through a very arduous set of activities up here to save the Defense Nuclear Agency. It was not more than 2 years ago when they were scheduled to be eliminated.

DEFENSE NUCLEAR AGENCY

I remember vividly working very hard to save the Defense Nuclear Agency from extinction on the basis that there was a great synergism between the Department of Energy's activities at Kirtland Air Force Base and the DNA, and that there was still work for the DNA to do. Now, we have the Air Force suggesting that it can be split into two parts and moved to two different air bases and still remain functional. You cannot keep very many military men on the realigned Kirtland and still justify the realignment.

I want everybody to know, especially the media, that there is a very major national security issue that is the subject matter of closed hearings, not this one. KUMSC, the Kirtland underground munitions activity that is there will not be discussed in public as to what it is and what it does. But there is a lingering issue as to whether or not that operation ought to have a military base around it or not, or whether it can be taken care of in some other way.

We will only talk about costs and known commodities as relate to that, General there will not be any of the secret information, but

rather, how do you protect it, how do you keep it from being degraded in terms of security.

With that, I invited the members of New Mexico's delegation to join our four witnesses today. Senator Bingaman is here, and let me say, it has been a pleasure working with him and Representative Schiff, and the other members, as we prepare for this BRAC hearing. Senator Bingaman, if you would like to make some opening statements, you are welcome, and then you, Representative Schiff.

STATEMENT OF SENATOR BINGAMAN

Senator BINGAMAN. Thank you very much, Mr. Chairman. Congratulations to you for getting this hearing organized.

I do think it is a concern for your subcommittee. Obviously, if the costs are to be picked up by the Department of Energy in future years, the additional costs, I think that is something that you need, your subcommittee particularly needs to concern itself with, and all of us do, of course.

I do think that the decision which I understand the Department of Defense made to not consider in this BRAC process any costs shifted to other agencies, I think that was a wrong decision. According to the process description they put out, they said here that DOD found that these costs, that is, costs shifted to other agencies, in most cases analyzed would amount to a small fraction of BRAC savings, less than 2 percent, therefore, would not be likely to alter BRAC decisions.

I think clearly, from what I understand you are going to hear today and we are all going to hear today, that is not the case with Kirtland. There is nothing like 2 percent involved, and to sort of arbitrarily say we hereby conclude it is going to be less than 2 percent, therefore, we do not need to consider it, it seems to me to be a very unnatural way to go about reaching the right decision.

So, I compliment you on having this hearing, and I look forward to hearing the testimony and continue to work with you on this issue.

Senator DOMENICI. Thank you very much.

STATEMENT OF CONGRESSMAN SCHIFF

Mr. SCHIFF. Thank you, Mr. Chairman. I also want to join Senator Bingaman in congratulating you on setting up this hearing. I want to thank you for this special courtesy for inviting me from the other side of the Capitol to join you. I do appreciate it, and I would like to make just one observation.

I received some mail on this issue that I assume all of our offices have received, that went something like this: How can we say that the Nation has to reduce Federal spending and balance the budget, which we aim to do in 7 years, and then object to the major realignment at Kirtland Air Force Base?

I want to respond by saying those are two separate issues, in the sense I believe that we ought to target balancing the budget in 7 years. I think in doing so there will be some spending reductions that will affect the whole country, including New Mexico, which I think unfortunately unavoidable. It is something we need to do if we are not going to bankrupt future generations.

But I believe this realignment of Kirtland Air Force Base as proposed by the Air Force and the Secretary of Defense simply will not be a savings. If I believed that there would be a significant savings as claimed and no adverse effect on the mission, that would be one thing, but I think exactly the opposite.

I think that once we go through, step by step, the proposed savings will not be there. There will be a cost shifting, as you and Senator Bingaman have already observed, and not only a cost shifting to other Government agencies, but in great part from one part of the defense budget to another part of the defense budget, not even to other agencies. I think if we go into it further, that will happen, as in the case of the Veterans Administration, and so forth, and I want to say that I think there will be a severe impact on the mission, in terms of dividing up entities that should be together.

I want to conclude by saying that it has been for some time now defense policy, and I think it is even in the BRAC Commission policy, to look to have a number of different tenants on one base or in one area supported by one common military support structure. That is exactly what we have at Kirtland. The Air Force supports a number of defense-oriented facilities, and now the Air Force wants to turn around and say, well, we want out of that and let everyone else fend for themselves, and I think it is exactly the wrong direction to go.

Thank you, Mr. Chairman.

Senator DOMENICI. Very good points. Thank you so much.

We are going to proceed. While we are all busy, this is a hearing you should have plenty of time, all of you, to answer questions, and we should have plenty of time to ask them. We have 2 hours set aside, and obviously none of you have long, detailed statements, but we really want to hear from our scheduled witnesses.

From what I have been told, we have arranged this so you, Dr. Reis, will lead off by way of some comments and an introduction, then Al would be next, OK, followed by Mr. Twining, and then, General, you will address a completely different issue.

General HAGEMANN. Yes, sir.

Senator DOMENICI. Dr. Reis, please proceed.

STATEMENT OF VICTOR H. REIS

Dr. REIS. Thank you, Mr. Chairman. I appreciate the opportunity to come here and talk to you about this important issue this afternoon. I have a short written statement that, if you would, I would like to have included in the record.

Senator DOMENICI. You can read it if you would like, sir.

Dr. REIS. I will just go through a couple of points, because I think it is important to get the facts out as soon as possible.

Senator DOMENICI. It will be part of the record.

STOCKPILE STEWARDSHIP

Dr. REIS. Let me just make three quick points. First of all, let me assure this committee of the Department of Energy's continued commitment to ensuring a safe and reliable stockpile, that is the Defense program mission. That is our No. 1 job, and regardless of what happens, we are going to do that.

Second, that Albuquerque Operations Office and Sandia Laboratories will remain major complements of that commitment now, and as far as we can look at in the future, they will be big players in that operation.

CLOSURE OF KIRTLAND AIR FORCE BASE

Third, we have in the past and certainly will continue to cooperate to the best of our ability with the Department of Defense, the Air Force, and the Base Realignment Closure Commission [BRAC] as they analyze the effect of the Kirtland Air Force Base.

We are here primarily to provide facts. I have been through this before. Having worked at the Department of Defense, I think the process is a good one, and when the facts, I believe, are presented and have an opportunity to be analyzed, I am sure the process will come to the right judgment.

PREPARED STATEMENT

So with that, let me turn it over now to Dr. Narath, and he will give you in some detail of what our situation is now and might be under the Air Force withdrawal from Kirtland.

[The statement follows:]

PREPARED STATEMENT OF DR. VICTOR H. REIS

Mr. Chairman, I am pleased to appear before you today to discuss the national security activities of the Department of Energy. As you know, we are working very hard to develop a vision for the future to provide: Science-based stewardship of our Nation's nuclear deterrent; and dismantlement and drawdown of the U.S. stockpile to negotiated START II levels.

The infrastructure and support for this vision are closely tied to the Department of Defense and directly involve our Department of Energy field operations and national laboratories. Especially important are the activities carried out in New Mexico at Kirtland Air Force Base by the Department of Energy, Sandia National Laboratories, and the Department of Defense.

The science-based stockpile stewardship program includes above-ground test facilities and computational capability at the Sandia National Laboratories. This role is critical to the future of the nuclear weapons complex. In addition to this role and their historical systems responsibilities for all nuclear weapons that will remain in the stockpile, Sandia National Laboratories is establishing a capability to manufacture neutron generators previously fabricated in our Pinellas, Florida, plant. They are also taking over responsibility for designing and procuring other nonnuclear components currently fabricated elsewhere. Sandia National Laboratories is working with the Department of Energy to design a factory of the future that will provide the flexibility and response required to support the enduring stockpile. This could entail an even greater role in the nonnuclear production mission.

Turning to our Department of Energy Office in Albuquerque, this office has historically been responsible for day-to-day integration of the weapons program and is working very closely with me to define and implement the complex of the future. Their close working relationship to Sandia National Laboratories, and various Department of Defense organizations on Kirtland Air Force Base, has served the national security interests well. This day-to-day relationship is enhanced by our co-location on Kirtland Air Force Base.

I am accompanied today by Mr. Bruce Twining, Manager, Albuquerque Operations Office, and Dr. Al Narath, President, Sandia National Laboratories, and staff. Both Bruce and Al have had discussions with the Air Force on its plans to realign Kirtland Air Force Base. I would like for them to explain the various activities conducted by the Department of Energy and Sandia National Laboratories on Kirtland Air Force Base and the impact the proposed realignment would have on the Department of Energy should the recommendations to the Base Realignment and Closure Commission be accepted.

STATEMENT OF AL NARATH, PRESIDENT, SANDIA NATIONAL LABORATORIES
ACCOMPANIED BY JEFFREY J. EVERETT, MANAGER, SITES PLANNING DEPARTMENT

SANDIA NATIONAL LAB-CORE MISSIONS

Senator DOMENICI. Do you want to get that mike shifted to Dr. Narath? Al, thank you very much for coming. I know it is not easy for us to have you up here so frequently testifying, but we really need your views today, and I thank you personally and on behalf of the New Mexico delegation.

Dr. NARATH. Well, Mr. Chairman, thank you for inviting me. Also, welcome to Senator Bingaman, Congressman Schiff. I am pleased that we are all together today to talk about this very important subject. I would like to set the stage for the cost estimates that Mr. Twining will present in a few minutes by giving you just a little bit of background on Sandia and the local situation.

As you know, one of our very important core mission responsibilities concerns the design of most of the nonnuclear components that go into nuclear weapons. Additionally, we have the responsibility for integrating these components with the nuclear explosive package to make a weapon that meets DOD requirements. These requirements today center very much not only on performance parameters but safety, security, and reliability.

LABORATORY INFRASTRUCTURE

To support these activities at the laboratory, we have established over time very extensive research and development facilities, and additionally a wide spectrum of highly specialized aboveground test facilities that play an important role in our ability to certify the characteristics of weapons. These activities and the associated facilities in the Albuquerque area would be very expensive to replace, and certainly cannot be moved.

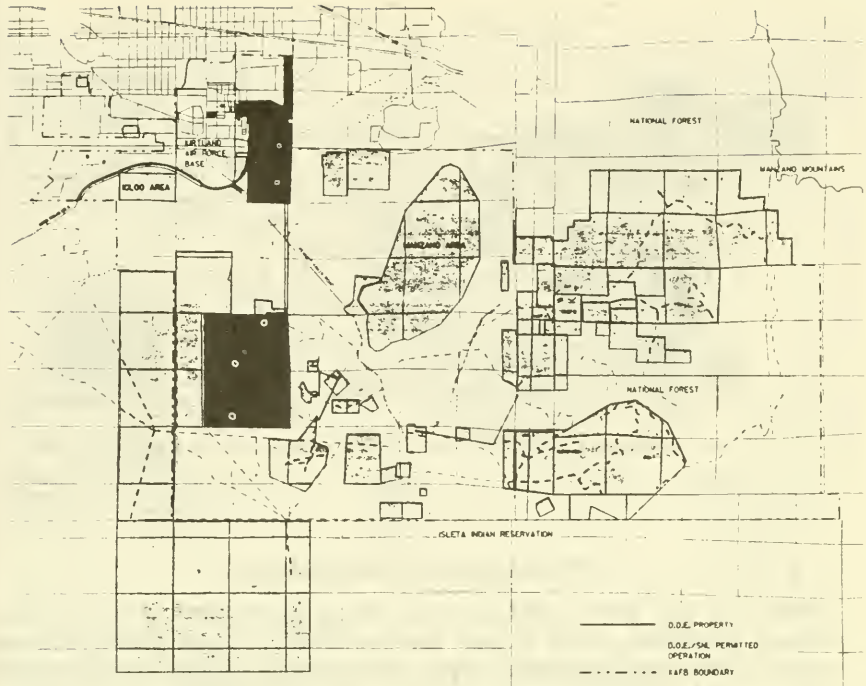
It is also important to recognize that a large fraction of these facilities involve rather significant hazards. That is to say, the general public has to be kept at a safe distance from these facilities whether they are operating at any given moment or not.

The development of all of these facilities has taken place over a period of decades, beginning in the late 1940's. At that time, Sandia began placing these facilities in an area that encompasses some roughly 50,000 acres. That is almost 100 square miles, an area that is contiguous with a lot of other activities, primarily sponsored by the Department of Defense; and among those, of course, the Air Force is the major user.

The point of all of this is that there is significant comingling of DOE and Air Force property and activities in this area, which is located very close to a metropolitan area.

I might say, when I started in 1959, living out in Sandia was living quite remote from the city. Today, encroachment has gotten to the point where we are literally surrounded on all sides by activities, which, of course, makes it very important to consider the consequences of any additional encroachment.

Just to give you a little bit more detail, we might look at the first chart.

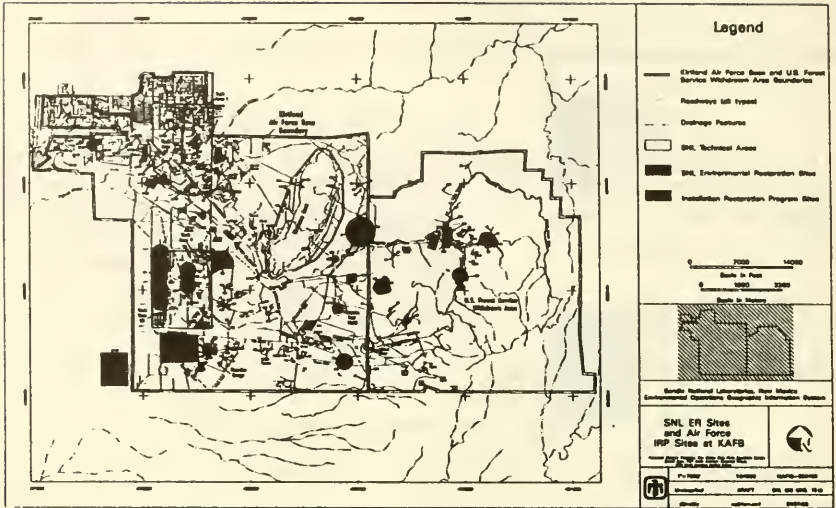


DOE/SNL Owned and Permitted Lands

LAND PARCELS

This displays the various parcels of land both belonging to the Air Force, the DOE, and land that the Air Force and DOE currently are using under permits. This is basically the 50,000 acres that I talked about, and the colored areas are the principal sites that support Sandia and DOD programs.

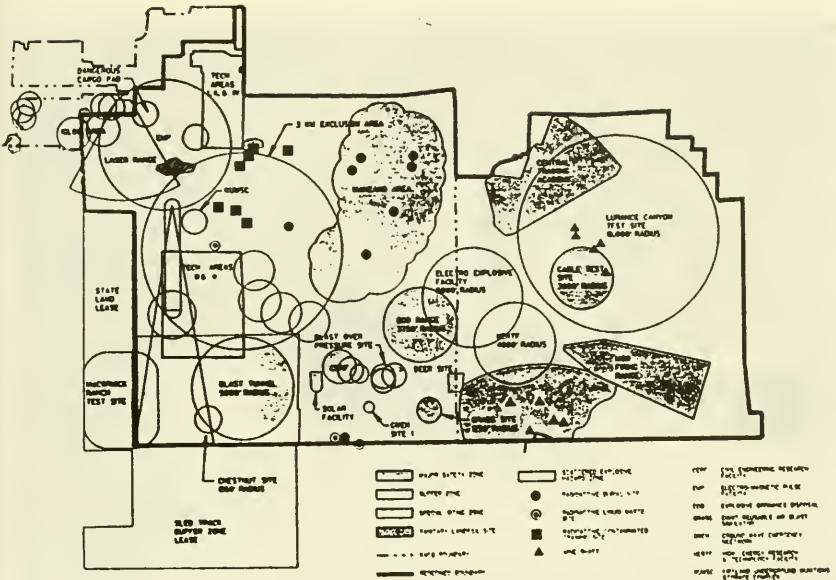
If you would turn to the next chart.



ENVIRONMENTAL REMEDIATION

This site has been used for very many years, and it is not surprising, therefore, that it has accumulated a lot of stuff that we rather wish were not there today. In particular, there are many environmental remediation sites both within the DOE and Air Force programs, and those are shown by the green spots.

Senator DOMENICI. Do you have another overlay on that?



SNL/KAFB Hazard Zones

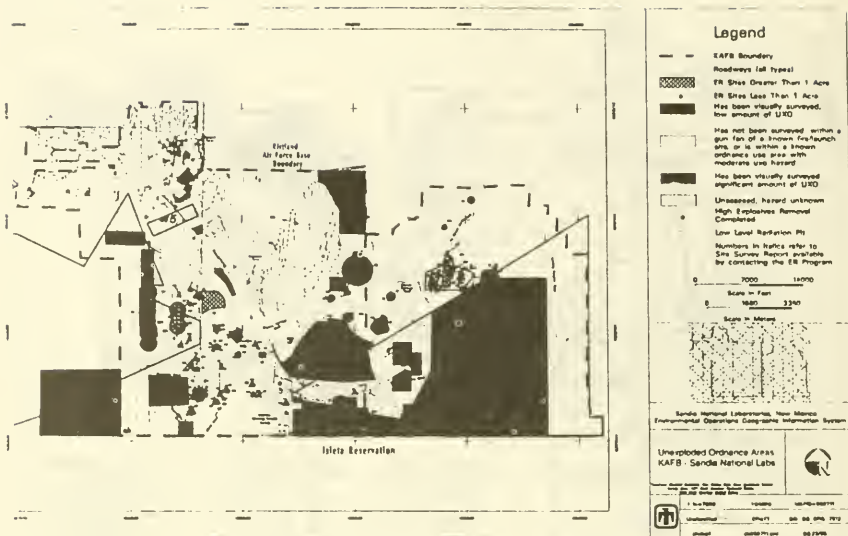


HAZARD ZONES

Dr. NARATH. Now, I mentioned the hazards associated with the field activities at Kirtland Air Force Base, and this chart, by way of the large circles, designates basically the keep-out zones.

Senator DOMENICI. Keep out?

Dr. NARATH. That is, you have to keep people away from the facilities in order to assure adequate safety margins. You see, there is essentially a complete overlap of the various activities, which again speaks to the commingling and the very high degree of integration of both DOE and Air Force activities.



UNEXPLODED ORDNANCE

The last point that I would like to make goes really back to the 1940's, at which time this area was used extensively for training purposes, supporting gunnery ranges, and I believe that there were some zones where bombs were dropped as well.

One of the consequences that haunt us to this day is that this whole area is still loaded with unexploded ordnance. What this chart shows are the areas in which one would expect to find such unexploded ordnance, just from our knowledge of the placement of the guns that were used during World War II. So basically, if you overlay the hazard zones associated with current operations, plus the hazards associated with unexploded ordnance—and, by the way, much of that acreage has never been surveyed to check on the concentration of these objects. We do know that even where we do not expect to find them, we frequently unearth unexploded munitions. It usually happens in the summer, after a heavy rainfall.

DEPARTMENT OF ENERGY/SANDIA FACILITIES

In your packet there are some pictures that you have probably seen that depict some of the major DOE facilities. To give you a better idea of what I am talking about, I believe the first of these in your package is what we call Tech Area V. This lies sort of near the center of the south 40, as we refer to it, and it is our reactor site.



Tech Area V - Northwest

There are two pulse nuclear reactors supported by the nuclear weapons program. You will notice that one of these facilities—you can count all the fences—is inside four fence lines, and that simply speaks to the large quantity of highly enriched uranium that is at the core of this reactor.

Senator DOMENICI. Where is that again up there?

Dr. NARATH. You might point that out. Incidentally, the yellow indicates DOE-owned property. You see that it is basically surrounded by Air Force property.

Another photograph that you have in front of you shows our two drop towers. The one nearest you is 300 feet high, and permits dropping full-up weapon assemblies without the nuclear portion, that is, again, to make sure that weapons remain safe in case of accidental impact.



Area III - Drop Tower

The next picture shows our rocket sled track. It is 10,000 feet in length and permits achievement of velocities at impact between Mach 1.5 and 3 of objects that may weigh as much as several thousand pounds.



Sled Track

CABLE SITE

Now, if you move to the east, up into the canyons, the mountains to the east of this area, you will see a major experimental site. It is our cable site. It involves a cable that is strung between two mountain peaks that permits heavy objects to be suspended, prototypical bombs to be dropped. It was used by DOD to do experiments on submunitions. By the way, you see some tanks arrayed in a circle, just to show the scale of the operation.



The final example I show is what we call a burn site. One of the major concerns in nuclear weapons safety has to do with what happens to a weapon if it happens to be caught in a fire, such as you might encounter in an airplane crash. So we subject test hardware to simulated conditions. Again, you can imagine that this is a very hazardous undertaking.



VIDEO

Do we have those other charts?

Before I conclude our statement, I would like to show a very brief video that perhaps will give you a better sense of the scale of the experiments. Can we roll it?

[Video shown.]

Dr. NARATH. That is the rocket sled track taken with high speed photography. There is a lot of violence in that area, as you can tell.

[Pause.]

That is the cable facility. You just pull down an object off the cable, in a rocket-assisted mode.

Senator BINGAMAN. Is this all being done for the Department of Energy?

Dr. NARATH. Yes; in most cases. There are a few shots that depict work done for the Department of Defense.

That is the burn site. You can see that some of the neighbors are not particularly happy about the smoke.

[Pause.]

A water impact experiment. Here you loft a bomb. It has got to deploy a parachute, and that is part of series of experiments to demonstrate lay-down of a weapon.

[Pause.]

That was obviously work done for the DOD.

This was not meant to give the impression that we are bent on destruction. I would like you to know that this work is required to

develop a base of understanding that goes into ensuring that the nuclear weapons stockpile remains safe and secure and meets all performance specifications.

IMPACT OF KIRTLAND CLOSURE ON SANDIA

Now, let me wrap up by mentioning just a few concerns. The impact on the laboratory obviously comes in two forms. First of all, the direct impact having to do with costs, and this is something Mr. Twining will discuss.

Incidentally, it is very important for you to understand that the mission responsibilities, as I described, are enduring responsibilities. They are in no way tied to whether we ever build a brandnew weapon. Maintaining a stockpile makes it essential that this mission continue to be supported.

Now, the more indirect impacts go beyond costs. They have to do with encroachment. They have to do with public attitudes. They have to do, for example, with our continuing ability to hold onto the land use permits from the Forest Service, for example. There are people on the other side of the mountains who would very much like to regain access to this area. Right now, with both Air Force and DOE standing in the way, it has been possible to hold onto this land. Once the Air Force pulls out, of course, it will be more difficult for DOE alone to defend these permits.

And, of course, finally, the comingling of the land use, commingling of facilities in this area, really makes the disentanglement not impossible—but it is going to take some very careful planning to carry it out.

That concludes my remarks.

STATEMENT OF BRUCE TWINING

Senator DOMENICI. Let us proceed to Bruce Twining and then ask questions. After that, we will hear the General separately, if that is all right. Do you have a tight timeframe?

Mr. SCHIFF. No; I can go to 5 o'clock.

Senator DOMENICI. Mr. Twining, you may proceed.

ROLE OF ALBUQUERQUE OPERATIONS OFFICE

Mr. TWINING. Mr. Chairman, I, too, thank you for the opportunity to be here, and what I am going to try to cover are three topics very briefly. One is the synergy on nuclear weapons activities that goes on at Kirtland Air Force Base between the Department of Energy, Sandia Lab, the Air Force and Defense Nuclear Agency [DNA] and other agencies that are located there.

The main thing I want to cover today are the cost estimates, and I will mention a few things about Kirtland underground munitions storage complex [KUMSC], but as you said, there is not a lot that we can say in an open hearing on that.

DOE and the Kirtland Air Force Base itself has been a center of our nuclear weapons activity for many years. My office has a historical role of integrating the day-to-day activities in the complex. DOE works not only with Sandia, but with the other two nuclear labs, the production plants, and DNA, to make sure that all the logistical support that is required for weapons can take place.

Having all those functions collocated at Kirtland has been very, very useful. It would be hard to say that it is impossible to do things another way, but as Dr. Narath said, it is going to require a lot of planning and a careful transition.

PROGRAM WITH UNITED KINGDOM

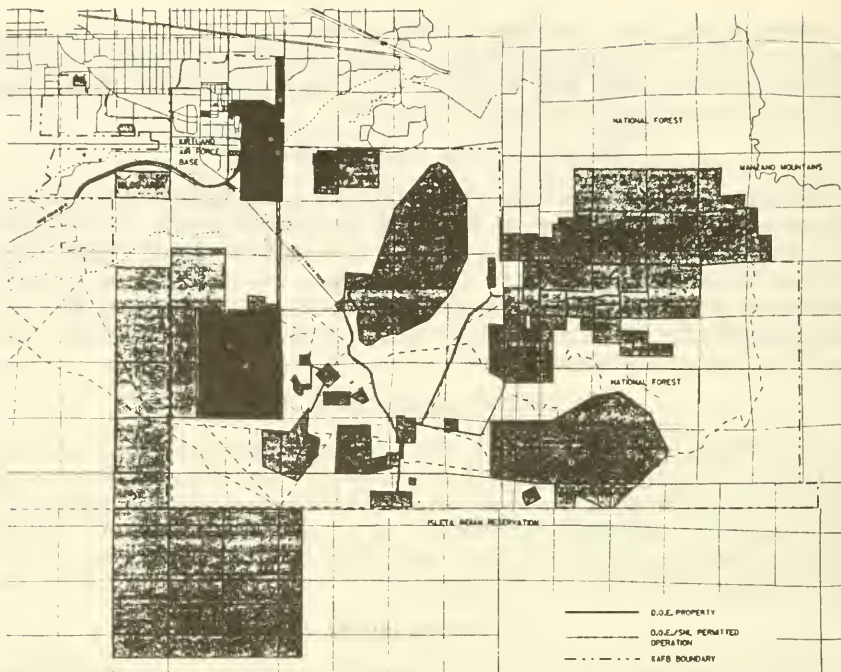
There are two things that are somewhat unique that we have not mentioned that go on with Kirtland as a focal point. The first is a cooperative program with the United Kingdom. We transfer classified components between their program and our program from Kirtland Air Force Base. The arrangement could be changed with some difficulty, but the current relationship has built up over time and works very, very well.

ACCIDENT RESPONSE GROUP

The second has to do with the accident response group [ARG], which is a group of people led by people in my office working very closely with DNA, and supported by the laboratories and plants. It is a national capability to respond to an accident anywhere in the world. The staging ground for responding to those kind of accidents is currently Kirtland Air Force Base.

COST IMPACTS

Let me get on with the cost impacts. In summary, you mentioned what the bottom line is, about \$64 million up front, one-time costs associated with DOE/Sandia. The \$64 million puts DOE in the position of being the landlord for a parcel of land that is shown on this chart back here.



DOE/SNL Owned and Permitted Lands

CANTONMENT

Mr. TWINING. This parcel represents most of the whole east side of Kirtland Air Force Base.

Mr. EVERETT. Starting from about this point, and then encompassing the eastern boundary of the reservation.

Mr. TWINING. OK, but what is our cantonment?

Mr. EVERETT. I can show it, just the northern portion.

Senator DOMENICI. So it just leaves that little piece up there out, is that it?

Mr. EVERETT. That is correct. Essentially, this area up in here.

Dr. NARATH. It sort of comes across and down and over.

Senator DOMENICI. And what is that that is left out, principally?

Mr. TWINING. Housing, military housing.

Senator DOMENICI. Military housing.

Mr. EVERETT. Yes; and the cantonments that the New Mexico National Guard has identified and the Phillips Laboratory has identified.

Dr. NARATH. Not all of the military housing, because that part immediately north of our Tech Area 1 would have to be protected as a buffer zone because of the amount of, again, hazardous, industrial-type operations that would not permit housing that close.

Senator DOMENICI. So could I just make sure that I have this right? If a realignment occurs in the current form, just that small piece, which seems to me to be 5 percent of this, would be subject to redevelopment, and the rest would have to be secured in one

way or another similar to what it is now as part of an Air Force base?

RECURRING COSTS

Mr. TWINING. Yes; and the recurrent cost, as you mentioned, is about \$31 million a year. We have had several meetings with the Air Force staff, the BRAC staff, and the General Accounting Office [GAO]. We have agreed with the Air Force that sometime in the near future we will work together on our cost estimates to make sure there is not any double counting. We cannot assure that today.

We are pretty comfortable with the costs we have estimated. The assumptions that went into the cost estimate are that the realignment would occur, and that it would take 3 to 5 years to accomplish. There would be a couple of years of planning up front.

And the Air Force would have essentially completed what they needed to do by 1999. We assume that DOE and Sandia would become the landlords for the new DOE cantonment area, and that we would be responsible for providing security, safety services, and utility services within that cantoned area.

Now, within that area, there will still be other tenants, and we are assuming in this cost estimate that the services we provide to the other tenants would be billed back on a cost reimbursement basis.

Finally, as we have prepared this estimate, we have tried to limit the number of buildings that DOE/Sandia would take over. We, too, are in a downsizing mode, and it is not in anybody's best interests for us to take over a lot of buildings and then be responsible for the maintenance costs for those over the long term.

AIR FORCE RESPONSIBILITIES

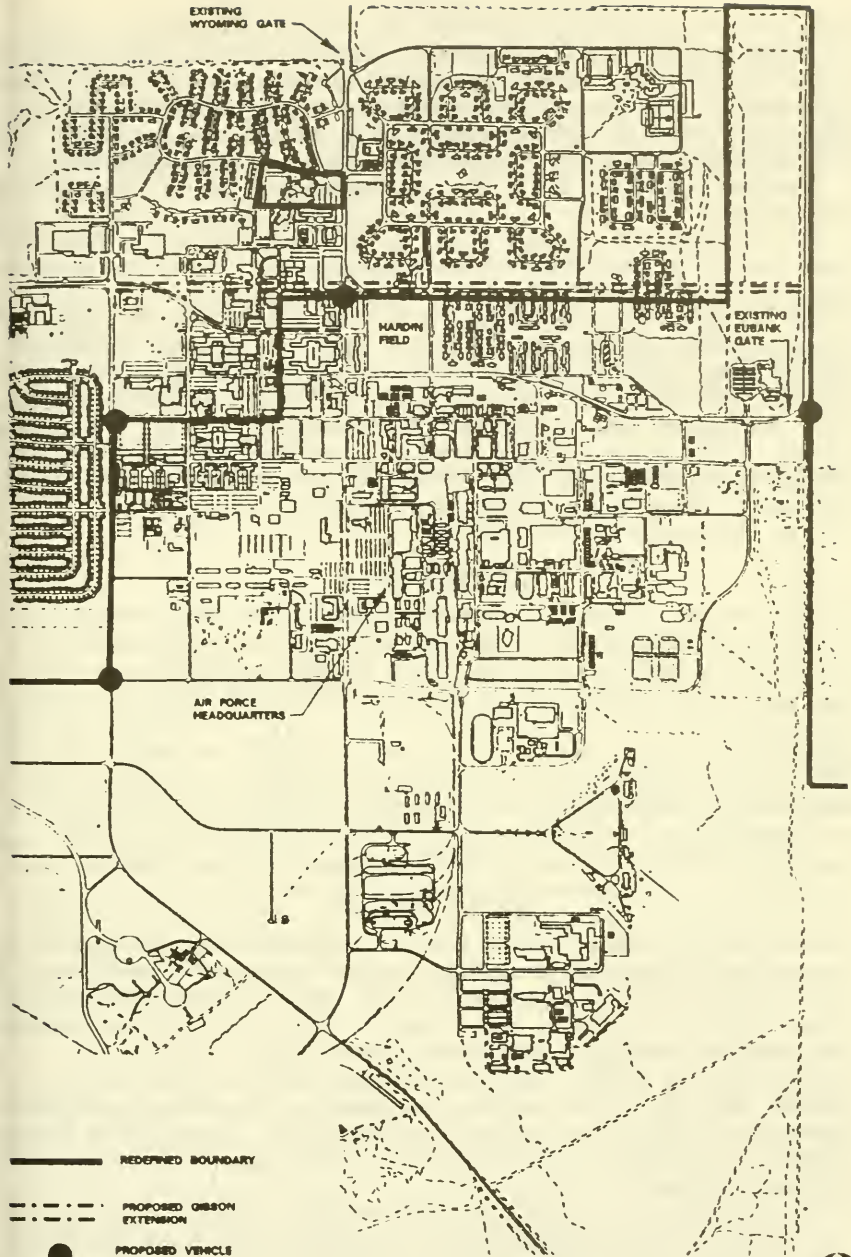
We have not assumed that DOE would take responsibility for the whole base, and we talked about that earlier. We are assuming that the Air Force continues to be responsible for the unexploded ordnance. We are not interested in getting involved in that. We are assuming that the Air Force continues to be responsible for their environmental restoration sites, and that the Air Force will leave the buildings that they and we do not want in a mothballed or pickled condition, and that we do not have to worry about them.

COST ESTIMATES

Some of those buildings that are being vacated by the Air Force will be evaluated over the next couple of years to see if they might serve the future needs of Sandia rather than construct new buildings. Very often refurbishment costs can wind up costing more than a new building, and we want to, over the next 2 years, take a hard look at those kind of things.

The kind of services that are included in our estimate in the public safety area, are fire safety, security, and emergency operations. Physical plant costs include: roads, bridges, traffic lights, gates, fences, ground maintenance, utilities, electrical systems, water systems, gas lines, steam systems, and communications.

We included in our cost estimate the impact on some DOE activities that are actually going to be outside of the DOE cantonment as drawn up on this chart.



Proposed DOE Cantonment



DEPARTMENT OF ENERGY CANTONMENT

Those include our Ross aviation activity, which will probably have some reimbursement costs to whoever the landlord is for that cantonment. We have an Allied Signal operation of about 250 people on the west side of the airport that we are also factoring. We are not assuming that our cantonment includes those activities.

Senator DOMENICI. What does cantonment mean in this context for this base?

Mr. TWINING. It is a word that I never heard before this base closure came up, but it is a self-contained entity that has a fence around it that is watched over by a landlord.

Dr. NARATH. If I could just add to that, cantonment is really an inappropriate term for the piece that DOE will assume responsibility for. What cantonment implies to me, at least, is that you isolate various activities, and have them be sort of self-sufficient, if you will. Because of the overlap of hazard zones and so on, the whole South 40 is going to have to be surrounded by a single security perimeter, and so that is going to be the cantonment, simply taking the current base and shrinking it a little bit.

[The information follows:]

RESOURCE IMPACTS

[Dollars in millions]

	Conversion	Operating	FTE's
Public safety	15.1	14.9	202
Physical plant	18.4	3.8	40
Utilities	28.6	10.1	40
DOE	2.0	0.4	6
Equipment O&M and replacement		1.4	
Incremental costs	64.1	30.6	288

COST ESTIMATES

Mr. TWINING. The third-to-the-last chart in your package is a summary of those cost estimates broken down to the level that I have talked through, and I will not go into the costs in any more detail. We have provided these costs to GAO, including the backup material that went into estimating these costs.

We have not tried to estimate the cost impact of this closure on people who are in the other cantonments, for example, Phillips Laboratory. That is not in these numbers. That is one of the things that if we do get into a working group with the Air Force we can sort out over time.

To conclude, our infrastructures are very closely tied, and DOE had enjoyed a good relationship with the Air Force for the period of time that we have been located on Kirtland. Untangling our activities with those of the Air Force is going to take careful planning.

We think we have done a reasonably credible job of estimating the costs to DOE. We are worried about the long-term impacts on Sandia, especially related to the ability to maintain the permits that Dr. Narath talked about. There will be some impacts on the

United Kingdom and the ARG activities, because we are going to have to plan a different way of working those things.

With that, I think I would like to conclude.

Senator DOMENICI. Thank you very much.

Would you like to start questions, Jeff, or Steve? I have plenty, but I will let one of you go.

Senator BINGAMAN. I will ask.

Senator DOMENICI. Sure. Go ahead.

UNEXPLODED ORDNANCE

Senator BINGAMAN. Let me ask just a few, and then take turns, I guess.

I guess I am confused about several things here. From what I hear, there continues to be Air Force responsibility for unexploded ordnance. Did I not hear you say that?

Mr. TWINING. Yes.

Senator BINGAMAN. And unexploded ordnance is on the maps. I thought that was——

Mr. TWINING. It is virtually everywhere.

SECURITY

Senator BINGAMAN. So how does that work as far as what you are responsible for and what the Air Force remains responsible for as far as this cantonment idea, and who provides the security? I am very confused in my mind as to who sends who out to guard what.

Mr. TWINING. That is a very good point. The activities that we have going on inside Sandia and to some extent inside my office depend on that perimeter security that the Air Force provides now.

Now, if you get into the reactors at Sandia, for example, there is an extra level of fencing, and Sandia has their own security forces that provide on-site security. However, part of the delay time that we take credit for when we look at the various threats depends on that external security that is provided by the Air Force.

Senator BINGAMAN. So you see the Air Force as continuing to have that responsibility. So they would continue to provide external——

Mr. TWINING. Right now, we have assumed in this cost estimate that we will provide perimeter security with a guard contractor, Sandia employees, or Federal employees. We will clear them, we will train them, and we will get them the equipment they need. There is, however, a very serious liability issue with Sandia or a private contractor being responsible for an external perimeter which cannot be guarded with 100 percent assurance that the public will not somehow get access to some unexploded ordnance.

Senator BINGAMAN. I am still confused, because I thought I heard you say the Air Force continues to be responsible for unexploded ordnance.

UNEXPLODED ORDNANCE

Mr. TWINING. What I mean by that is that they need to clean it up sometime. We are not taking that responsibility.

Senator BINGAMAN. Oh, I see, but they are not responsible for securing all of the area.

Mr. TWINING. Our cost estimate assumes that we take over the responsibility for perimeter security around the DOE cantonment which includes unexploded ordnance.

Senator BINGAMAN. You also talked about other cantonments, and you mentioned Phillips Lab. What other cantonments are there besides Phillips Lab?

OTHER CANTONMENTS

Mr. TWINING. Phillips Lab and the Air National Guard. Are there others?

Mr. EVERETT. Yes; there are Army detachments from White Sands missile range. Those folks are taking over the electromagnetic radiation [EMR], electromagnetic pulse facilities [EMP]. There is a flight test squadron detachment that is in the large hangar at the east end of the runway. The white elephant, we call it, the Airborne Laser Laboratory, and they do work for both the Army and the Air Force. They are a detachment of the flight test squadron out of Edwards Air Force Base.

There is all told on the order of 180 tenant organizations on Kirtland Air Force Base.

Dr. NARATH. But many of those occupy land that we would have to assume responsibility for.

Mr. EVERETT. Yes.

Mr. TWINING. KUMSC, for example, is inside the boundary that we drew for the DOE cantonment.

Senator BINGAMAN. But I guess what I am trying to have clear in my mind is if you folks have responsibility for this external security, what additional responsibilities are there for security of pieces of that within the external boundaries?

SECURITY COST ESTIMATES

Mr. TWINING. We costed out the external security for this DOE/Sandia cantonment. The Phillips cantonment is outside of that. The Air National Guard is outside of that. We did not include their costs in our estimate.

Senator BINGAMAN. So there is nothing inside that that requires a higher level of security that you folks are not responsible for.

Mr. TWINING. KUMSC. We are assuming that we are not providing the close-in security for KUMSC.

Dr. NARATH. Just to amplify a point he made and then try to respond directly to your question, the issue is really one of future liability, and I would assume that if there is an accident involving unexploded munitions, that would have to be considered an Air Force responsibility, but I am just guessing. It would have to be worked out.

DOE could hope to provide the level of outer perimeter security that the Air Force currently provides.

The approach we use now is not to have any of the land open for just casual use. People who work down there know exactly where they are supposed to work and what they are supposed to do. They do not go hiking around the back 40, because that could be very hazardous.

UNITED KINGDOM PROGRAM

Senator BINGAMAN. Let me ask one other question, and that is about the United Kingdom. You said that you have this cooperative program with the United Kingdom. How does that fit into the responsibilities that people will have once the realignment occurs?

Mr. TWINING. We have about one flight a month that comes into Kirtland, and they take various sorts of hardware back to the United Kingdom to support their program.

Senator BINGAMAN. Do you see this as any kind of problem continuing that cooperative program under the newly realigned—

Mr. TWINING. We would have to find some other place for them to fly into, I think. It is not an insurmountable problem.

Senator BINGAMAN. But you would not want to have the responsibility for them flying in and out of Kirtland.

Mr. TWINING. They fly a military aircraft in. It is very easy to come into Kirtland Air Force Base.

Senator DOMENICI. Steve.

Mr. SCHIFF. Yes; a couple of questions at this time, Mr. Chairman. There is obviously here in your testimony a strong inter-relationship between the Air Force and the Department of Energy, including Sandia National Laboratories, on Kirtland Air Force Base.

REALIGNMENT ANNOUNCEMENT

The Secretary of Energy, Mrs. O'Leary, testified before a subcommittee that I chair that she only found out about the proposed closure 5 days before it was officially announced, which would make it the end of February, that timeframe. She indicated that the contacts between the Air Force and the DOE that had occurred—this is a quote—"were not at the appropriate level".

I would like to ask, prior to the announcement of the realignment at Kirtland, was there ever an official visit between the Air Force and Sandia National Laboratories, or the Department of Energy, where the Air force inquired at that time what would your costs be, what would your concerns be, before they went ahead and announced it?

COORDINATION ON COST ESTIMATES

Mr. TWINING. In New Mexico, our first contacts with the Air Force were about February 27, which was about a week before the official announcement. We had visits from the Air Force beginning to explore our cost impacts about 2 weeks after that, I think.

Mr. SCHIFF. After that.

Mr. TWINING. But there were no discussions with us prior to that point.

Mr. SCHIFF. Well, I think that just makes the point more strongly that the Air Force is not considering the impact on the entire defense mission of this realignment.

The second matter I would raise is, if I am understanding correctly from your presentation from the maps, between those areas that remain necessary to keep confined from public access because of continuing security needs, when combined with those areas that need environmental remediation such as the ordnance areas, you

put all that together, there is not a lot of area of Kirtland Air Force Base, as big as it is—it is one of the biggest Air Force bases in the world. There is not a lot of area left for future public use, for some kind of economic redevelopment in another direction, is that right?

USABLE LAND

Mr. TWINING. We understand there is about 2,000 acres, which is mostly housing area.

Mr. SCHIFF. Available, potentially available.

Mr. TWINING. 52,000.

Senator DOMENICI. Two over 50.

Mr. SCHIFF. Two, not a lot.

Dr. NARATH. Four percent.

Mr. SCHIFF. I bring that up because, as you well know, there have been those in New Mexico who say that this should be viewed as a new beginning, that we can use the vast area and facilities at Kirtland Air Force Base to bring in some new kind of economic opportunities to the State. But as you view it, that opportunity really would not exist.

Mr. TWINING. I think the big parcel of that land is tied up with the Sandia test facilities that Dr. Narath talked about, and it is also covered with this unexploded ordnance that we work around, and environmental restoration sites that belong both to us and to the Department of Defense.

Senator DOMENICI. And the storage facilities.

Dr. NARATH. And KUMSC, and quite a number of Phillips Lab operations.

Mr. SCHIFF. Could I make just one observation, Mr. Chairman, before we go on?

Senator DOMENICI. Of course.

Mr. SCHIFF. In their analysis, the Air Force has argued that the realignment of Kirtland is less costly to the Air Force than some closures. But that is because they are not looking at a closure cost at Kirtland because they are not closing Kirtland. They are saying this is a realignment.

But the other side of that proverbial coin is that a great deal of territory simply is not going to be available to the public and available for reuse that might be available in other areas if there is a closure.

I yield back, Mr. Chairman.

Senator DOMENICI. Thank you, Jeff and Steve, and clearly we have got some more time. If you have got some unanswered questions, we will get right back to you.

PROPOSED CLOSURE—DECISION LEVEL

When the Secretary of Defense and Assistant Secretary Deutch came to our offices, frankly, without knowing all of the details that I have learned since, and that you have presented here today, I said to them that they were making a decision which, in my opinion, was not solely a military decision. But this decision on behalf of the United States of America affecting a valuable piece of real estate with many uses and many underlying problems that had to be cleared up, yet there was much synergism with DOE missions and the very, very secret facility that we have all named here

today. I thought the United States of America could probably, from the standpoint of national security, not find a more distinct and valuable piece of real estate in the United States.

I believe that today more than then, and I think the problem that we are running into is that this is very much not a U.S. Air Force decision. It should not have been. This decision should not even necessarily have been made by the Secretary of Defense.

This property and the uses are so diverse, running from DOE to critical national security activities, to regular Air Force operations, are all combined together that Albuquerque has become this very vital place. I also want to make a point, also for the DNA General, and then I would like an observation.

Frankly, I do not believe it is fair to the people of the city of Albuquerque and the State of New Mexico to leave that facility with what we now know—and the Commission will know a lot more about what goes on there. To leave it in any mode that is not totally supported and safeguarded by a branch of the military in my opinion is absolute lunacy.

We are going to have more problems than you can ever figure in a \$62 million hypothetical savings 7 years from now. That will be an irrelevant number by the time we solve the problems that are going to come upon the U.S. Government—and I say, not Defense, the U.S. Government, as a result of this kind of a piecemeal approach to getting rid of it but keeping it.

Now, let me just ask Dr. Reis, there is some contention, albeit not in the open but floating out there, that maybe the U.S. Air Force thought that the Department of Energy is getting too good a deal from the U.S. Air Force. Frankly, to me, that is just so patently crazy, but I understand that contention is out there—too good a deal. What do you think about that kind of statement?

DEPARTMENT OF DEFENSE STATEMENTS ON DEPARTMENT OF ENERGY
AT KIRTLAND

Dr. REIS. Well, they have never expressed that to me. I have heard nothing from the Air Force whatsoever to that effect at all. Senator DOMENICI. Ever?

Dr. REIS. Ever.

Senator DOMENICI. And how long have you been involved with the relationship between the Defense Department at DOE?

Dr. REIS. Well, of course, having been on the other side of this in the Defense Department, I was there officially for almost 4 years—3½ years. I have been over here now for close to 2 years. This is the first time I have ever heard that.

Senator DOMENICI. And Al Narath, you constantly have to go back between the Department of Energy and the Department of Defense. Some people do not know that, but when you talk about the development of our nuclear deterrent, and now it is safeguarding and maintenance, Sandia and DOE wear a very different hat than just the energy research activity.

Dr. NARATH. That is correct.

Senator DOMENICI. Have you ever heard the U.S. Defense Department, in your myriad of meetings, say that maybe DOE ought to pay for more of the cost of this facility called Kirtland Air Force Base?

Dr. NARATH. It has not ever been stated quite that definitively. There have been some suggestions very recently that as a tenant on Kirtland Air Force Base that we are getting a good deal, in the sense that the Air Force does provide much of the infrastructure such as fire protection, some emergency response capabilities, takes care of maintaining roads and so on. There are a few things we provide the Air Force, as well. I am not an accountant, but one could perhaps argue that as a tenant we have been fairly treated.

Senator DOMENICI. Dr. Narath, do you, as an expert in all of this, and one who has to manage this very major facility in the nuclear maintenance area, do you share my concern that taking the facilities you are aware of, some of which we are not going to discuss much about today, do you think it is in the best interest of the United States that we take away the military support and military protection that ensues from them, at this point in history?

Dr. NARATH. Well, you are now touching on something other than cost, probably.

Senator DOMENICI. No; this is now a different issue. We know the cost issue. We have heard that today.

PUBLIC RELATIONS—NUCLEAR WEAPONS PROGRAM

Dr. NARATH. Well, you have heard me say this on a number of occasions. I am very much concerned about the increasing public indifference, if not outright opposition, to the whole nuclear weapons program. It remains national policy to base much of our defense posture on the existence of capable nuclear weapons in our arsenal. As such, it is very important to maintain the nuclear weapon infrastructure. The Kirtland area constitutes a very large fraction of that infrastructure, and as we are moving some of the production activities into that area, it will become more important. So public perception and public acceptance of that activity in such close proximity to a major civilian center is of utmost importance, and I do fear that as the military presence either disappears or is greatly reduced that it will lead to more public inquiry, more questioning, and eventually could easily lead to strong opposition to continued existence of the DOE activities in that area.

I hope that answers your question.

Senator DOMENICI. Well, I could not have done better myself. Thank you for the response. I have general feelings in that regard, but I do not have the basis for them as you do.

Jeff, do you have some more?

COST ESTIMATES

Senator BINGAMAN. Yes; let me just try to nail down in my own mind the estimates that we have gotten in the recommendations from the Department of Defense for what they will save. As I understand it, they are 20-year estimates. Could you give us your best judgment as to the 20-year cost to the Department of Energy? You told us \$64 million, I think, first-time or upfront cost, and then \$30 million a year. Do you have a present value cost estimate or a rough estimate you could give us?

Mr. TWINING. We have not run that out. The numbers that I am giving, by the way, are fiscal year 1995 numbers, so they are not

escalated numbers. But we have not tried to discount those numbers.

Senator BINGAMAN. Taking my simplistic approach here, you have got \$30 million a year times 20 years, so you have got \$600 million plus the upfront costs. And then you discount that to the present.

Dr. REIS. You make the discount rate equal the inflation rate, which is equal right now.

Senator BINGAMAN. So how does that compare to the \$450 million which the Air Force claims they will save in the next 20 years? Will it cost you more in the next 20 years to do this than the Air Force is intending to save?

Mr. TWINING. Senator, we have not looked at it from that angle.

Senator BINGAMAN. But that is the relevant question, is it not, on the cost?

Mr. TWINING. Yes.

Senator DOMENICI. Senator, what we know is that DOD is going to spend more upfront than DOE will. But you are going to spend almost one-fourth as much. But if you just get to the time when they actually start saving money, it is \$64 million a year for them, and his testimony is that they have to spend how much?

Mr. TWINING. About \$30 million.

Senator DOMENICI. Thirty.

Mr. TWINING. \$30 to \$31 million.

Senator DOMENICI. So, if you took the end of it, without the upfront investment, it would be just about one-half. So whatever is discounted there would be about one-half. But DOD spends more upfront. So, your question still is relevant, because it would be more than one-half—they have got to spend 400-and-something versus 60-something.

Senator BINGAMAN. I think it would be real useful, that calculation, so the present value of what you expect to spend in the next 20 years—

Mr. TWINING. We can provide that.

[The information follows:]

ESTIMATED COSTS TO DOE AS RESULT OF PROPOSED KIRTLAND AIR FORCE BASE
REALIGNMENT

At the April 3, 1995, hearing conducted by the Senate Appropriations Subcommittee on Energy and Water Development, Senator Bingaman asked for the estimate of costs, expressed in net present value, to be incurred by the Department of Energy [DOE] as a result of the proposed Kirtland realignment. Attached are three cost scenarios which the Albuquerque Operations Office believes to be credible. Of these, Scenario 1 is the most reasonable, and indicates that the cost impact to DOE over the next 20 years will be \$443 million. In calculating the cost estimates, we used the same 2.75 percent net present value discount rate as used by the U.S. Air Force [USAF]. Please note that the variance of the other scenarios does not exceed \$1 million. Therefore, there are no significant differences in the three scenarios.

NET PRESENT VALUE DOE COSTS

(Millions of dollars)

Fiscal year	Scenario 1				Scenario 1A				Scenario 1B			
	DOE/AL annual costs	DOE/AL ad-justed ann. costs	DOE/AL NPV acc. costs	Air Force NPV costs factors	DOE/AL annual costs	DOE/AL ad-justed ann. costs	DOE/AL NPV acc. costs	Air Force NPV costs factors	DOE/AL annual costs	DOE/AL ad-justed ann. costs	DOE/AL NPV acc. costs	Air Force NPV costs factors
1996	1.1	1.1	1.1	1.013657	1.1	1.1	1.1	1.013657	1.1	1.1	1.1	1.013657
1997	16.4	15.8	16.9	1.041532	9.9	9.5	10.7	1.041532	19.6	18.8	20.0	1.041532
1998	31.9	29.8	46.7	1.070174	22.3	20.8	31.5	1.070174	41.5	38.8	58.7	1.070174
1999	41.2	37.5	84.2	1.099604	44.5	40.4	71.9	1.099604	34.8	31.7	90.4	1.099604
2000	33.3	29.5	113.7	1.129843	39.8	35.2	107.1	1.129843	26.9	23.9	114.2	1.129843
2001	30.6	26.4	140.0	1.160914	37.0	31.9	139.0	1.160914	30.6	26.4	140.6	1.160914
2002	30.6	25.7	165.7	1.192839	30.6	25.7	164.7	1.192839	30.6	25.7	166.2	1.192839
2003	30.6	25.0	190.7	1.225642	30.6	25.0	189.6	1.225642	30.6	25.0	191.2	1.225642
2004	30.6	24.3	215.0	1.259347	30.6	24.3	213.9	1.259347	30.6	24.3	215.5	1.259347
2005	30.6	23.6	238.6	1.293979	30.6	23.6	237.6	1.293979	30.6	23.6	239.2	1.293979
2006	30.6	23.0	261.6	1.329564	30.6	23.0	260.6	1.329564	30.6	23.0	262.2	1.329564
2007	30.6	22.4	284.0	1.366127	30.6	22.4	283.0	1.366127	30.6	22.4	284.6	1.366127
2008	30.6	21.8	305.8	1.403695	30.6	21.8	304.8	1.403695	30.6	21.8	306.4	1.403695
2009	30.6	21.2	327.0	1.442297	30.6	21.2	326.0	1.442297	30.6	21.2	327.6	1.442297
2010	30.6	20.6	347.7	1.481960	30.6	20.6	346.6	1.481960	30.6	20.6	348.2	1.481960
2011	30.6	20.1	367.8	1.522714	30.6	20.1	366.7	1.522714	30.6	20.1	368.3	1.522714
2012	30.6	19.6	387.3	1.564589	30.6	19.6	386.3	1.564589	30.6	19.6	387.9	1.564589
2013	30.6	19.0	406.4	1.607615	30.6	19.0	405.3	1.607615	30.6	19.0	406.9	1.607615
2014	30.6	18.5	424.9	1.651824	30.6	18.5	423.9	1.651824	30.6	18.5	425.4	1.651824
2015	30.6	18.0	442.9	1.697250	30.6	18.0	441.9	1.697250	30.6	18.0	443.5	1.697250

Assumptions:

(1) DOE annual operating costs are projected to be \$30.6 million in fiscal year 1995 dollars.

(2) DOE one-time costs are projected to be \$64.1 million in fiscal year 1995 dollars.

(3) DOE takes over operations at the same pace as the Air Force loses personnel. One-time costs phased in over three years beginning in fiscal year 1997.

(4) Uses the same discount rates used by the Air Force.

Mr. TWINING. I really think that as this goes forward it is important that we do work with the Air Force on these numbers to come out with the best integrated estimates.

Mr. SCHIFF. Senator, if you will yield, these are DOE figures. As important as they are, they are added onto by the fact that the Phillips Laboratory and the New Mexico National Guard are going to have to come up with expenditures out of the Air Force budget for their continued support; the veterans hospital next door, which now has a sharing agreement, is going to have to cover the cost that the Air Force is withdrawing, and I am sure there are other tenants that add into this equation, which is why I think we reached the conclusion, certainly on this side of the table, that there is not a net savings to the Air Force, and then you are starting to look at a cost to the Government.

Senator DOMENICI. The taxpayers.

Mr. SCHIFF. The taxpayers. And then you are going to look into the effect on the mission, which you have also testified to.

Thank you, Senator.

Senator DOMENICI. Shall we keep these witnesses for just a little while, while we talk to General Hagemann? Is that all right with you?

Mr. TWINING. That is fine.

Senator DOMENICI. I am going to submit some additional questions in writing to both Al, and you, Bruce, and get them in as quickly as you can. We are on our way home, and we have got to go testify at a hearing in New Mexico on the 20th. Can you get them in before that?

Mr. TWINING. We sure will.

DEPARTMENT OF DEFENSE

DEFENSE NUCLEAR AGENCY

STATEMENT OF MAJ. GEN. KENNETH L. HAGEMANN, U.S. AIR FORCE, DIRECTOR

Senator DOMENICI. General, we welcome you. Do you have some prepared remarks?

General HAGEMANN. Yes, sir; I do, but if you would accept those for record I will not take the time to read them.

Senator DOMENICI. Without objection, they will be made part of the record.

General HAGEMANN. I would like to add some additional comments. Thank you, sir.

I am pleased to be here this afternoon. I would like first of all to point out that DNA headquarters is located in Alexandria, VA. Field Command at Kirtland Air Force Base is an extremely important part of DNA's operation, especially as it pertains to operations in the support of the stockpile. In addition, Field Command has extremely important roles in training and test operations at Kirtland Air Force Base.

The one thing that I would like to add in addition to the prepared comments is that DNA also is a tenant at Kirtland Air Force Base, and the Air Force has, since the late January timeframe, worked very closely with DNA. The Agency continues to work very closely with the Air Force and its goals within those constraints. The Air Force has accepted what our requirements are, and those are being made a part of the cost estimates that are continuing to be worked.

Senator DOMENICI. Is that January of this year? Late January 1995?

General HAGEMANN. Yes, sir.

Senator DOMENICI. When did they announce to us that they were going to do this? When did they come to our office and tell us this?

Mr. SCHIFF. Well, they did not announce it officially until March 1.

Senator DOMENICI. Yes; but they told us it was on the list in February something.

Mr. SCHIFF. February.

Senator DOMENICI. So, they started talking to you, General, one month before the decision, if your testimony is right here.

General HAGEMANN. Yes, sir; it was in the late January timeframe.

Mr. SCHIFF. And the number of tenants that received the letter dated February 1 from the Air Force asking what would be the effect on you, and all that had to be finished by March 1, which is when the Secretary of Defense had to sign off on it. So they did not have much time to look at those figures.

Senator DOMENICI. Go ahead, General. Excuse me.

General HAGEMANN. Yes, sir; the Air Force has been very receptive to what our requirements would need to be at other locations.

An additional point that I would also like to make has to do with relocation of various Field Command missions. As the site surveys go on, one of the things that I have made clear to the Air Force is we have to have very good assurances that the alternative location for testing will, in fact, allow us to do tests. The Air Force understands that. That is part of the equation.

And the final point that I would like to make is we have an extremely good working relationship with Sandia National Labs. Sandia is a conduit to the other laboratories. In fact, Dr. Narath and I have signed MOU's, especially in the area of simulator development, and we also have close working relationships on training and accident response among other things.

Sir, with that, I am ready for any questions that you might have. [The statement follows:]

PREPARED STATEMENT OF MAJ. GEN. KENNETH L. HAGEMANN

Good afternoon Mr. Chairman and members of the Subcommittee. I am pleased to be here to discuss the Department's Base Realignment and Closure proposal regarding Field Command Defense Nuclear Agency.

AGENCY MISSION

I would like to begin by summarizing the mission of the Defense Nuclear Agency and the role of Field Command within that mission. The Defense Nuclear Agency serves as the Defense Department's center for nuclear expertise. The focus of the Agency is to help ensure that U.S. military forces are prepared to operate in an environment in which opponents may possess nuclear, biological, and chemical capabilities. Agency missions include:

- support to nuclear operations and the maintenance of the DOD nuclear stockpile; this includes monitoring and inspections of the stockpile and nuclear capable commands; as well as support in the areas of safety, security, accident/incident response, and training;
- nuclear weapons effects research to permit the operability of systems, particularly critical command and control systems, in nuclear environments;
- research to enhance the lethality of conventional weapons against hardened and underground facilities, many of which are associated with nuclear, biological, chemical weapons and represent a challenging new target base for our warfighters;
- and support for arms control, nuclear threat reduction, and counterproliferation programs.

Through the use of simulators and computer models, DNA retains the scientific expertise and develops data necessary to ensure advanced conventional systems, nuclear systems, and command and control systems will continue to operate in nuclear environments. This expertise is also being used to increase the lethality of conventional weapons against hardened and underground facilities. Many of these facilities are associated with nuclear, biological, or chemical weapons programs and represent a new and very challenging target set for our warfighting commanders. To assist them, DNA is providing options for more effective targeting of such underground and hardened structures to ensure both target destruction and minimum collateral damage. The Agency is also providing the means for enhancing battle damage assessment against such targets.

Additionally, DNA develops arms control verification technologies that might be used for on-site inspections. Agency counterproliferation efforts are focused on technology base development and demonstrations as well as acquisition strategy.

Lastly, the Agency manages and implements the Cooperative Threat Reduction or "Nunn-Lugar" program to assist the newly independent states of the former Soviet Union in the safe, secure dismantlement of nuclear, chemical, and other weapons.

FIELD COMMAND DNA

The headquarters of DNA is in Alexandria, Virginia. An important part of the Agency, Field Command, is located at Kirtland Air Force Base. Field Command is the operational arm of the Agency but also fulfills essential technical roles.

As the operational element of DNA, Field Command carries out a myriad of tasks requiring close contact with the military Services, operational commands, and the weapons development community. For example, the Stockpile Operations Directorate maintains the national accountability database of the national nuclear stockpile. It is also responsible for monitoring critical aspects of the safety and security of our nation's nuclear stockpile.

The Assessments and Training Directorate operates the Interservice Nuclear Weapons School which trains DOD and other government agencies on nuclear weapons accident and incident response, as well as U.S. national nuclear capabilities and counterproliferation. This directorate also evaluates the safety, security, reliability, and accountability of the nuclear weapons stockpile by inspecting all the military services' nuclear capable units and provides reports to the Joint Chiefs of Staff and the Office of the Secretary of Defense.

The Test Operations Directorate conducts aboveground high-explosive nuclear effects simulation tests and special weapons effects tests at the White Sands Missile Range and the Nevada Test Site. Additionally, the directorate operates a thermal radiation facility, a large blast/thermal simulator facility, and an advanced research electromagnetic pulse simulator.

Field Command is authorized 239 military and 264 civilian personnel. Of that total, 463 work at Kirtland Air Force Base. Twenty additional personnel work at the Nevada Test Site. Twenty military personnel also serve on Johnston Atoll in the Pacific, providing base support for the Army's Johnston Atoll Chemical Agent Disposal System [JACADS].

DOD BRAC PROPOSAL

The Defense Nuclear Agency fulfills an important mission, one made all the more vital since the Services themselves are divesting themselves of many nuclear support and research functions. Although Field Command DNA enjoys an excellent relationship with Albuquerque and Kirtland Air Force Base, the execution of the DNA mission is not indivisibly tied to any specific location.

As you know, the Department has proposed that, as part of the realignment of Kirtland Air Force Base, Field Command relocate most of its activities to Kelly Air Force Base in San Antonio, Texas. High explosives test activities would move to Nellis Air Force Base, outside Las Vegas, Nevada. The Large Blast/Thermal Simulator would remain at White Sands Missile Range. Remaining in Albuquerque would be the Advanced Research Electromagnetic Pulse Simulator [ARES] and the Radiation and Test Analysis Branch.

At the time the Air Force proposed the realignment, DNA was informed that the goal was to reduce the number of remaining military personnel at Albuquerque to a minimum. Given that a large military presence in DNA is essential to the operational support and R&D missions of the Agency, I came to the conclusion that Field Command could move elsewhere. I also concluded that Kelly Air Force Base provides a suitable location for most Field Command activities. Given potential access to existing ranges in Nevada, transferring the high-explosive testing function to Nellis Air Force Base also appears to be a viable choice. Lastly, I decided that the simulators located at both Albuquerque and White Sands Missile Range required relatively few military personnel and could remain at their present locations.

The Air Force and DOD concurred with my approach and included it, unchanged, in the proposal submitted to the BRAC Commission.

CONCLUSION

This concludes my formal remarks. I would be pleased to respond to your questions.

BIOGRAPHICAL SKETCH OF MAJ. GEN. KENNETH L. HAGEMANN

Major General Kenneth L. Hagemann is Director, Defense Nuclear Agency, Washington, DC.

General Hagemann was born April 20, 1942, in Holyoke, Colo., where he graduated from Holyoke High School in 1960. He earned a bachelor of Science degree in mathematics from Colorado State University in 1964. The general completed Air Command and Staff College in 1979, and Air War College in 1983.

A distinguished graduate of the Reserve Officer Training Corps program, he was commissioned as a second lieutenant in the Air Force in 1964. General Hagemann then attended navigator Training at James T. Connally Air Force Base, Texas, and received wings in July 1965. He then was assigned to the Electronic Warfare Officer Training Squadron, Mather Air Force Base, Calif., as an instructor, and a standardization and evaluation examiner.

In July 1969 he entered undergraduate pilot training at Williams Air Force Base, Ariz., and earned pilot wings in July 1970. General Hagemann then was assigned with the Pacific Air Forces in Southeast Asia where he flew C-123K's at Phan Rang Air Base, South Vietnam. He flew 115 combat missions in support of allied forces and instructed South Vietnamese air force pilots in C-123K systems during the Vietnamization Program.

He entered combat crew training in B-52's at Castle Air Force Base, Calif., in November 1971. The general subsequently was assigned to the 416th Bombardment Wing, Griffiss Air Force Base, N.Y., serving as a combat-ready co-pilot, aircraft commander, wing bomber scheduler, instructor pilot, and chief of the Standardization and Evaluation Division.

From July 1976 to April 1981 General Hagemann was assigned to Headquarters Strategic Air Command, Offutt Air Force Base, Neb., where he served successively as an action officer, branch chief, and deputy chief of the Bases and Units Division, Directorate of Plans and Programs, Office of the Deputy Chief of Staff for Plans. During that time the general was involved in several significant projects, including the reactivation of Royal Air Force Station Fairford, England; B-52 wartime basing; and B-1 basing. General Hagemann then became commander of the 20th Bombardment Squadron, Carswell Air Force Base, Texas. In August 1982 he entered Air War College.

General Hagemann's next assignment was to Headquarters U.S. Air Force, Washington, DC., in the Directorate of Plans, Office of the Deputy Chief of Staff for Plans and Operations. He first served as deputy chief of the Strategic Offensive Forces Division. Later he became division chief with the responsibility for the development of the strategic offensive force structure for the Air Force. His division established strategic aircraft and missile force requirements, and coordinated Air Staff actions on nuclear weapons employment policy and force-level considerations for strategic arms reduction negotiations.

In August 1984 the general was assigned as vice commander of the 379th Bombardment Wing, Wurtsmith Air Force Base, Mich., and in January 1986 he became commander. The wing employed B-52's, KC-135's and the air-launch cruise missile as part of SAC's deterrent force. In January 1987 General Hagemann became executive officer to the SAC commander in chief. He then was assigned as deputy director for analysis, concepts and systems, Joint Strategic Target Planning Staff, and commander in chief Strategic Air Command representative to the JSTPS, Office of the Chief of Staff, Headquarters Strategic Air Command, Offutt Air Force Base, in March 1988. In March 1990 General Hagemann assumed command of 7th Air Division, Ramstein Air Base, West Germany, and also was deputy chief of staff for strategic forces, conventional application, Headquarters U.S. Air Forces in Europe. The air division controlled all refueling and bomber assets operating in the European theater. This role was crucial in the air bridge and bomber campaign against Iraq during Operations Desert Shield and Desert Storm. General Hagemann became Director for Operations, Defense Nuclear Agency, in December 1991. He assumed his present position in April 1992.

The general is a senior pilot with more than 5,000 flying hours. His military awards and decorations include the Defense Distinguished Service Medal, Legion of Merit, Distinguished Flying Cross, Meritorious Service Medal with three oak leaf clusters, Air Medal with no oak leaf clusters, Air Force Commendation Medal, Republic of Vietnam Air Service Medal Honor Class, and Republic of Vietnam Honor Medal First Class.

He was promoted to major general Nov. 1, 1991, with same date of rank.

General Hagemann is married to the former Jeanette Sue Stenson of Holyoke. They have three children: Kenneth, Todd, and Charlyn.

DEFENSE NUCLEAR AGENCY FIELD COMMAND STATUS

Senator DOMENICI. Well, as I understand it, as a Field Command DNA has a lot on its plate. Could I just go through a series of things and just have you discuss them with us?

General HAGEMANN. Yes, sir.

Senator DOMENICI. What are the synergies or efficiencies Field Command enjoys with organizations currently located at Kirtland?

General HAGEMANN. The synergies and efficiencies that exist today are primarily the result of being collocated with other related activities. We have a good working relationship with the Air Force Weapons Integration Office, which is part of the Air Force right there at Kirtland. As I mentioned, we have day-to-day contact with Sandia National Lab across a series of things, and that ranges from training to logistics and maintenance. In regard to the Nunn-Lugar program or the Cooperative Threat Reduction Program, there are a number of things that Sandia does to support us on, and again, all of those efforts require day-to-day coordination.

Senator DOMENICI. Would any of these efficiencies or synergies be lost by moving field command to another location?

General HAGEMANN. Sir, I think what we are talking about really is a matter of efficiencies. Today, the fact that we are collocated there just makes it more efficient. I am forgetting the word that I really want to use in this context. In any case, with today's VTC—video teleconferencing capabilities—telephone and, so on and so forth, coordination is possible although it may not be quite as convenient. I do not think that relocating would preclude us from continuing to have the very close contact, and essential contact that we have today in the areas of surety, safety of the stockpile—and so on and so forth. Today's convenience would not be there if we would have to relocate those functions.

SPLITTING COMMAND FUNCTIONS

Senator DOMENICI. Well, it just seems to me that you have at least to explain the recommendation, because it proposes to split DNA Field Command by sending part to Nevada and part to Texas. I cannot imagine that this makes your job as efficient or more efficient than if it remained at Kirtland.

General HAGEMANN. No, sir; as a matter of fact, when I first had contact with the Air Force, I made it very clear that the much preferred situation was that DNA Field Command would remain at Kirtland Air Force Base. But the military manpower constraints under the Air Force proposal were such that I could not leave Field Command behind.

A military presence in Field Command DNA is important. In other words, you just cannot civilianize the entire organization. With the military constraints that were imposed in terms of Air Force manpower goals, it was necessary to relocate.

Senator DOMENICI. So essentially, they gave you criteria about what they wanted to end up with that made it almost impossible for you not to conclude that you had to move?

General HAGEMANN. Yes, sir.

Senator DOMENICI. If they only want to leave a certain number of blue suits, then obviously, if that is not good enough for you, you need a military presence, you are saying?

General HAGEMANN. Yes, sir.

Mr. SCHIFF. Could I?

Senator DOMENICI. Sure.

Mr. SCHIFF. General, just based on what you said, we appreciate your being candid on the matter. The remarks that you have in

your written statement and your testimony here suggest that higher headquarters said this is what we intend to do in terms of realigning Kirtland, now what is your proposal with respect to DNA to fit into that proposal, into that realignment. I am getting the impression that that is where you came into it, as opposed to anyone asking you would you like to stay at Kirtland. I am getting the impression the higher headquarters never asked you that question. Could you clarify?

General HAGEMANN. The way it was discussed with me is that Kirtland Air Force Base was closing, that there would be some military left behind, but that the goal was to minimize, absolutely minimize, the number of military to be left in the Albuquerque area. There certainly was room within that proposal to civilianize as much of the organization as I saw fit. Working with not only the headquarters here in Alexandria, but certainly going back to Field Command, we assessed how much of the organization we could civilianize, and we have that number, as a matter of fact. But within the goals, as outlined by the Air Force given that it was trying to achieve, I could not fit that number into that situation.

So then it became a situation where I had to search for alternatives that would again not necessarily be my preferred solution, but certainly would not prohibit me from accomplishing my mission. I think it is real important to understand that in no way do I see the relocation, as proposed, prohibiting us from getting our job done. Not at all. I would not even suggest that there would be a harmful impact on us being able to do that.

In today's changing world, I think, with VTC, fax, and so on and so forth, an awful lot of the coordination that we enjoy today in such a face-to-face way can be achieved over distances. Is it as good as what we have today? Things being different, my position would be to remain. But as outlined today, to support the DOD position and the goals that were trying to be established, we had to relocate.

Mr. SCHIFF. The point is, General, the goals were already set at the time that you were brought into the negotiation as to how to achieve those goals.

General HAGEMANN. I cannot comment to that. They very well may have been set at that point.

Mr. SCHIFF. Thank you, Mr. Chairman.

Senator DOMENICI. Jeff.

Senator BINGAMAN. Let me just see if I am clear. You say that they told you how many military you would be allowed to keep there? They said you could essentially have as many civilians as you wanted, but you could not have more military?

General HAGEMANN. They were trying to achieve a very low number, and my number was well outside it.

Senator BINGAMAN. Can you tell us the number that you were given? Is there any reason we cannot know that?

General HAGEMANN. I do not think so. In early conversations, we were talking in numbers of 50 or less.

Senator BINGAMAN. Fifty or fewer military. And you were convinced that you could not continue to do your mission with the 50 people there?

General HAGEMANN. Even if we got the full 50 share.

Senator BINGAMAN. Right. Now, was the 50 for the Air Force and you?

General HAGEMANN. I will be very candid with you, sir, I am not sure what the 50 included. I am not even sure that was the total number that was being thought of by the Air Force. I think I have heard the number 180 major tenants that were being talked about as examples of how we were trying to make this work. So in the context of our conversations about Phillips Lab, Albuquerque overall, and DNA, we talked about the number 50, that we were going to hold the military number down below 50.

Senator BINGAMAN. I am a little confused about exactly what the numbers are. The note here indicates that maybe the Air Force determined that they would want to stick with 100 or fewer military at Kirtland. Do you know of anything to confirm that?

General HAGEMANN. No; I do not. That is not to say that is not a good number.

Senator BINGAMAN. You just cannot confirm it for us?

General HAGEMANN. First of all, I cannot talk for the Air Force, but in terms of my conversations we talked of 50 or less as the goal. I think it is important to note that the question was could I accomplish my mission without being able to leave that number of military behind? I felt very uncomfortable with that. Therefore, could the mission be done somewhere else? And the answer to that is yes. Certainly not as conveniently as what we are doing today, but it could be done from somewhere else.

Senator BINGAMAN. One of the things we have asked for is cost estimates for moving to Kelly and Nellis. Are those done? Do you have those?

General HAGEMANN. Sir, those cost estimates are being worked by the Air Force. Our responsibility in this area is to make darn sure that we are providing all of our requirements—what has to be moved in terms of people, facility requirements, and the type of facilities that are required—and all of those have been articulated to the Air Force. Cost surveys are ongoing as we speak. Final costs, of course, will be worked by the Air Force.

REALIGNMENT COSTS

Senator BINGAMAN. You know, now, I have understood that DOD's internal procedures here that we referred to earlier does not call for them to look at the cost to other Departments, like the Department of Energy, and they did not do that. They did not calculate what the Department of Energy was going to have to do. But they also did not look at the cost to your Agency, as I understand it.

General HAGEMANN. Sir, I believe that they did. Those initial costs were based upon our stated requirements, except for one area. We provided one estimate, and that is to move what we call the permanent high explosive testing site [PHETS], which is the testing complex down in White Sands. In that particular area, we estimated the cost that would ensue to move that particular thing. But the rest of the costs are being worked based upon number of people moved and requirements for administrative space, training space, storage space, and so on and so forth. And that is being worked out.

Senator BINGAMAN. What I am unsure of is the Department has come in and told us we are going to save \$450 million in the next 20 years by doing this realignment. But as I understand what you are saying, that figure does not take into account the costs that your Agency is going to incur by having to go through the realignment. Is that right?

General HAGEMANN. I cannot speak to what went into the \$450 million figure. But those costs will be included, if they have not already been included. The point is that there is no cost to DNA. That was one of the ground rules upfront. This issue is, whether the Air Force has captured all those costs at this point; we are still working all of those issues with the U.S. Air Force.

Senator BINGAMAN. Well, we have a question and answer I guess we put to the Air Force here asking did the Air Force consult with Kirtland's scheduled remaining tenants, and did the Air Force get responses as to costs involved. And it says costs of actions to other agencies are not normally included in the calculations. Does that mean you, the cost to your Agency, is not included in the \$450 million?

General HAGEMANN. Sir, I cannot respond to that because I am just not familiar with it.

Senator BINGAMAN. If the Secretary of Defense is making the recommendation to the President as to what realignments and closures ought to occur, I would think he would take into account everything that DOD has oversight of, and that would include you.

General HAGEMANN. Oh, yes, sir; and it is my understanding that those costs were included in that. We provided our requirements ahead of time. Now, are they going through refinement now? Absolutely.

Senator BINGAMAN. But the cost to move to Kelly and Nellis, those were included?

General HAGEMANN. Those should have been included, because of the size of our organization.

Senator BINGAMAN. Do you know what those were? I mean, we have gotten costs here from Department of Energy as to what they estimate it will cost them. Do you have figures you could give us as to what it would cost you to move to Kelly and Nellis?

General HAGEMANN. No, sir; I do not have those costs. I have my requirements that I can articulate or provide.

Senator BINGAMAN. You think those costs were included, though, in what the Air Force considered?

General HAGEMANN. Yes, sir.

Senator BINGAMAN. So you think they had a number for the move to Kelly.

General HAGEMANN. I believe so. I am not an expert on the COBRA model, but I believe our requirements were made to them and were put into the COBRA model. Those are the initial costs that went into the proposal.

Senator BINGAMAN. So you think they have got figures for that, you are just not sure what those figures are?

General HAGEMANN. Yes, sir; I can very much tell you exactly what my requirements are regarding the number of people to be moved, how many square feet, et cetera.

Senator BINGAMAN. How many people do you have to move?

General HAGEMANN. Well, for example, to Kelly Air Force Base it would be 79 officers, 61 enlisted, and 191 civilians. Associated with that but not part of DNA are two military intelligence detachments, six DFAS, six ADP support contractors, and then we have a site that supports verification technology, the technical on-site inspection [TOSI] site with 15 associated contractors. Then there are related square footages, admin-type space, that I can articulate. Certainly, I can provide all that information to you. It was based upon those requirements that I believe the Air Force, using the COBRA model, did the initial estimates.

As we speak, we have participated with the Air Force at site surveys to verify whether there is new construction required or whether there are existing facilities that can do that. So those costs are being modified at this point.

Senator BINGAMAN. That TOSI site, what is that stand for again? What is that acronym?

General HAGEMANN. Help me with the acronym, Bob.

Mr. EVERETT. Technical on-site inspection.

Senator BINGAMAN. Now, it is your intent to move that, also?

General HAGEMANN. Sir, we have identified that as a activity to be moved.

Senator BINGAMAN. Something you would have to move?

General HAGEMANN. Yes, sir; but again, peeling the onion back so that you understand, that was also one of those things that has to do with verification of START. Before this ever became an issue, we were looking at it when it makes sense to phase it out anyway, because it has only about 18 more months of planned testing to be done. After that, it is a question as to whether there is a requirement for that activity any longer.

Senator BINGAMAN. I am going on too long, Mr. Chairman.

Senator DOMENICI. No; that is fine, Jeff.

Senator BINGAMAN. Thank you. I think it would be useful if you could give us the requirements both to go to Kelly and to Nellis. Are those the only two places you are having to move?

General HAGEMANN. Yes, sir; according to the proposal, they are.

Senator BINGAMAN. If you could give us that, that would be very useful.

General HAGEMANN. Yes, sir.

Senator DOMENICI. Can you do that rather quickly?

General HAGEMANN. Yes.

[The information follows:]

INFORMATION PAPER

SUBJECT. Field Command Defense Nuclear Agency (FCDNA) initial analysis of BRAC support requirements.

BACKGROUND:

DoD proposes to realign Kirtland AFB. FCDNA is projected to relocate activities as follows:

1. High explosive test activities are projected to relocate to Nellis AFB
2. Advanced Research EMP Simulator (ARES) and Radiation and Test Analysis Branch remain at Kirtland AFB and the Large Blast/Thermal Simulator (LB/TS) remains at White Sands Missile Range (WSMR)
3. All other FCDNA activities to include stockpile Operations, inspections, the Interservice Nuclear Weapons School (INWS), etc. will relocate to Kelly AFB.

REQUIREMENTS.

Limited time has not allowed the complete staffing of the requirements or alternatives. While this listing is an adequate basis for planning at this time, other requirements may be identified.

BACKGROUND INFORMATION:

The Field Command Fact Sheet is provided as enclosure #1.

The Field Command Existing Facilities Survey is provided as enclosure #2.

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KELLY AFB

- Personnel

Agency - 79 Officer, 61 Enlisted, 191 Civilian

Non - Agency -

2 - Military Intelligence Detachment (Army)

6 - DFAS (civilian)

6 - ADP support contractor.

15 - TOSI support contractor

- Special space (note 1)

Administrative support - 15,000 sf. includes Top Secret (TS) conference rooms and 12,000 sf. of classrooms and conference rooms to support the school. (enclosure 3)

ADP - 10,000 sf. single processing center capable of processing TS Data. (enclosure 4).

Warehousing - 24,000 sf normal industrial security.

Industrial Space - 6,800 sf Print Plant capable of printing and controlling TS information.

- 6800 sf. assorted building space to support the TOSI site.

Technical Library - 20,000 sf. (TS level).. Includes research facilities for visiting contractors, DoD, DOE personnel and others (enclosure #5).

Structurally changed:

15,000 sf - Nuclear Weapons Display area - TS (enclosure 3)

4,200 sf - 2 Auditoriums (TS) (enclosure 3)

550 sf - TS Vault (may need to be SCI)
400 sf - Stockpile Emergency Verifications Operations Center

Horizontal construction facilities:

6 acres INWES Training sites seeded with radioactive material (currently Thorium Hydroxide) to simulate a nuclear weapons accident. (enclosure 3)

27 acres TOSI site to research Nuclear Weapons Treaty Verification methods and technology. Estimate \$10 million to replace facilities.

.....
NELLIS AFB

- Personnel

Agency -34 Officer, 27 Enlisted, 60 Civilian

Non - Agency -

125 - Test Operations Support Contractor

- Special space (note 1)

Administrative support - 6720 sf includes conference rooms for test planning including VTC capability.

ADP - 400 sf. for classified computer connectivity

Warehousing - 79,000 sf normal industrial security.

Laboratory - 2,200 sf

Structurally changed:

400 sf TS vault

2,900 sf explosives storage bunkers (4@700, 1@100)

2,500 sf. Test Control Center

Industrial Facilities: 21,700 sf shops, R&D support.

Horizontal construction:

Permanent High Explosives Test Site (PHETS) approx. 10 sq. mile facility to test up to 8 KT nuclear yield equivalent (4,800 tons ANFO). (enclosure 6)

Giant Reusable Air Blast Simulator (GRABS) site, includes 20 ft. diameter shock tube on approximately 155 acres.

note 1 - Special space is determined on the GSA model (i.e. 135 sf. (net) per person). with general support administrative space included. Special admin. space is for external mission support only.

OTHER REQUIREMENTS

Additional information is provided to assist in the planning for support provided by others at Kirtland and which will need to be accommodated at Kelly, or Nellis or both.

1. General Base Support - FCDNA/Kirtland ISSA attached (enclosure 7).

2. Sensitive Compartmented Information Support - FCDNA/Phillips Lab ISSA attached (enclosure 8)

3. Atmospheric blast prediction support to HE testing - FCDNA/ASL ISSA attached (enclosure 9).

4. The interdependent classified processing relationships with Phillips Labs, DOE and Sandia Labs, as well as others, along with Continuity of Operations relationships will need to be replaced.

5. Both activities will conduct operations involving radioactive sources. The INWS training site will probably need to be under the jurisdiction of an NRC license, and the management of calibration and other radioactive sources (NRC Licensed Commodities) require the involvement of a Radiation Safety Officer.

6. The adequacy of the Kelly and Nellis transient quarters to support the DNA operations, particularly the school, will need to be investigated.

7. Army and Navy personnel support relationships will need to be developed.

8. The adequacy of the Nellis motor pool to support the 100+ vehicles (much of it construction equipment) which support the FCT mission must be assessed.

Field Command, Defense Nuclear Agency

Field Command, Defense Nuclear Agency, located at Kirtland Air Force Base in Albuquerque, New Mexico, is part of the technical and is the operational arm of the Defense Nuclear Agency. The Defense Nuclear Agency, located in Alexandria, Virginia, serves as the Department of Defense's (DoD's) center for nuclear expertise. The Agency's mission includes nuclear weapons stockpile management, Cooperative Threat Reduction (Nunn-Lugar) program support, nuclear weapon effects research, arms control and counterproliferation support, conducting Joint Nuclear Surety Inspections, and maintaining the Interservice Nuclear Weapons School. DNA research helps ensure U.S. forces are prepared to operate on future battlefields in which opponents may possess conventional, nuclear, biological or chemical capabilities.

Field Command's four directorates and one subordinate detachment are Test Operations, Stockpile Operations, Assessments and Training, Resources, and Johnston Atoll.

Field Command is authorized 239 military and 264 civilian personnel. Of that 503 total, 464 people work at Kirtland Air Force Base. There are 11 civilians and 3 military at the Nevada Test Site, Mercury, Nevada. At Johnston Atoll in the Pacific, 20 military positions are authorized.

As the operational element of the Defense Nuclear Agency, Field Command carries out a myriad of tasks requiring close and often daily contact with the military services, the using units, and the weapons development community. For example, the Stockpile Operations Directorate maintains the national accountability database of the national nuclear stockpile. It is also responsible for monitoring critical aspects of the safety and security of our nation's nuclear stockpile.

The Assessments and Training Directorate operates the Interservice Nuclear Weapons School which trains DoD and other government agencies on nuclear accident and incident response, as well as U.S. national nuclear capabilities and counterproliferation. This directorate evaluates the safety, security, reliability, and accountability of the nuclear weapons stockpile by inspecting all military services' nuclear capable military units and reporting status to the Joint Chiefs of Staff and the Office of the Secretary of Defense. It is responsible for DNDNA's environmental stewardship program, occupational safety and health, security, and radiation safety. It also directs the environmental cleanup of plutonium contamination on Johnston Atoll.

The Resources Directorate is responsible for supporting FCDNA's operational missions and provides a wide variety of services ranging from human resources management to financial management and to information management services.

FCDNA is responsible for host management of Johnston Atoll. Johnston Atoll is located 800 miles southwest of Honolulu, Hawaii. It provides base support for the Army's National Chemical Demilitarization Weapons Program and the U.S. Fish and Wildlife Service's National Wildlife Refuge.

The Defense Nuclear Agency tests to understand the effects of nuclear and conventional weapons. The Test Directorate, located at Defense Nuclear Agency's headquarters, manages the test programs, establishes test requirements, and provides oversight to Field Command. The Test Operations Directorate at Field Command conducts aboveground high-explosive nuclear effects simulation tests and special weapon effects tests at the White Sands Missile Range in New Mexico and at the Nevada Test Site. Additionally, the directorate operates a thermal radiation facility, a large blast thermal simulator facility, and an advanced research electromagnetic pulse simulator. It provides instrumentation and diagnostics support to ionizing radiation simulators and maintains the ability to resume underground nuclear testing at the Nevada Test Site.

Field Command, Defense Nuclear Agency Facilities

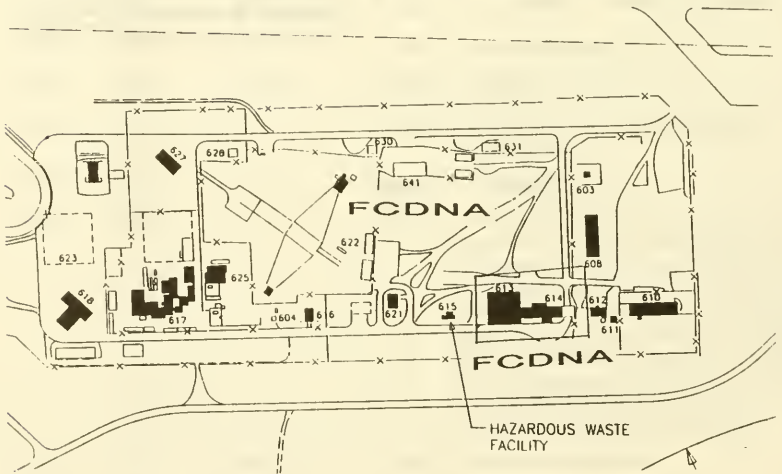
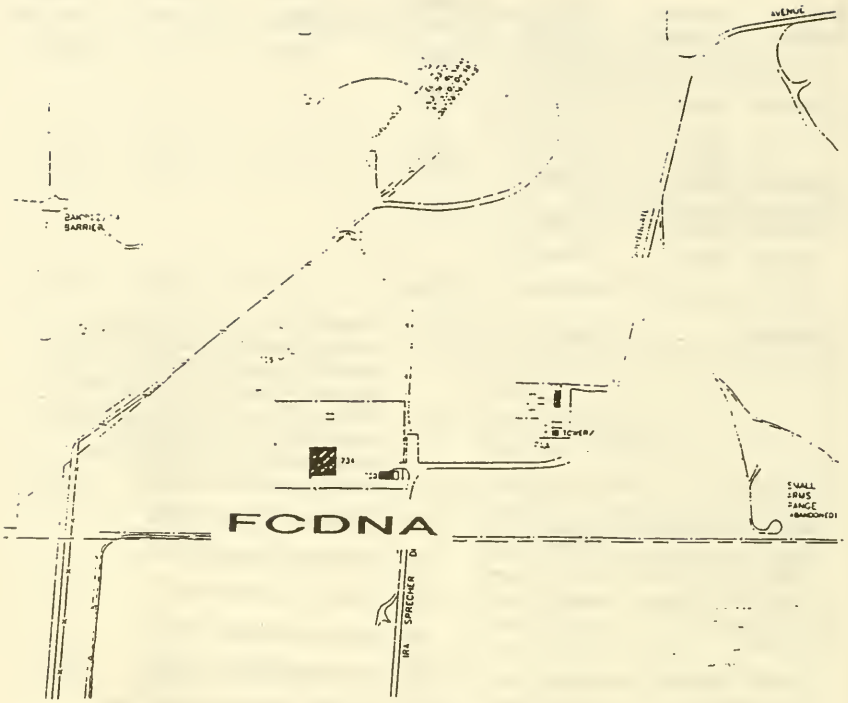
Acronyms:

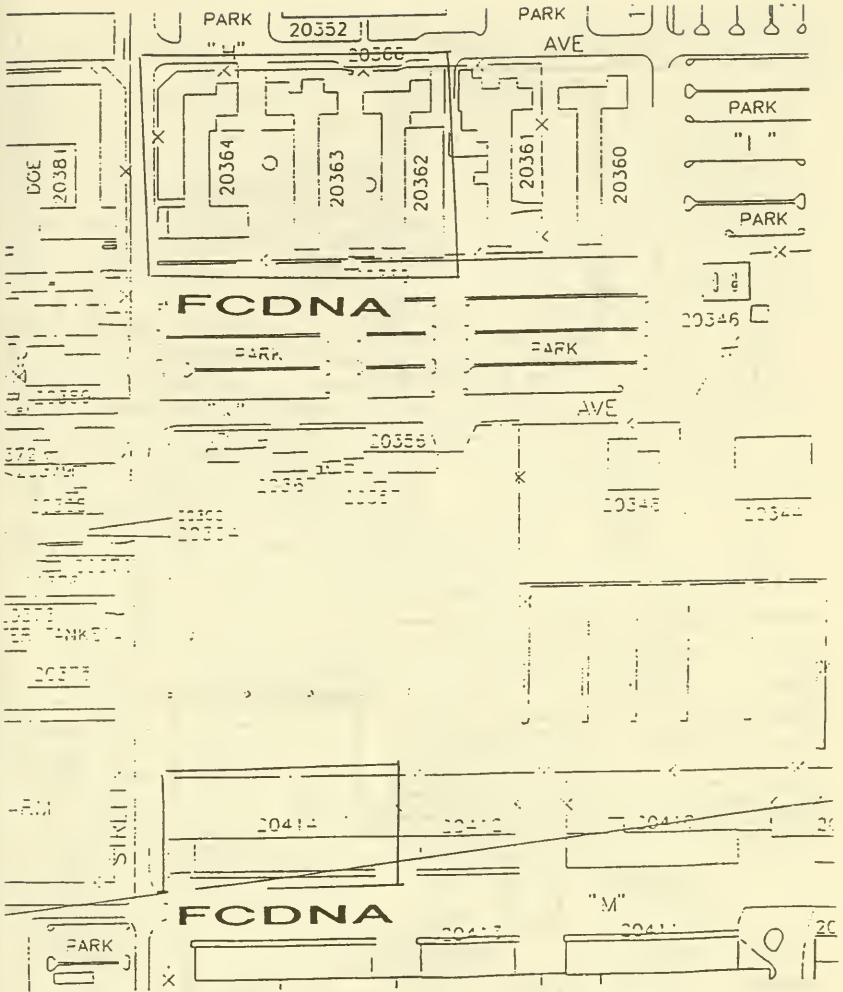
FCDNA Field Command Defense Nuclear Agency
 FCT FCDNA Test Directorate
 ARA Applied Research Associates (FCDNA Contractor)
 ARES Advanced Research Electromagnetic Pulse Simulator
 TOSI Technical On Site Inspection
 TRS Thermal Radiation Simulator
 TS Top Secret
 SF Square Foot
 HVAC Heating, Ventilating, and Air Conditioning
 UPS Uninterrupted Power Supply
 DASIAC Defense Atomic Support Information Analysis Center
 PSF Pounds per Square Foot

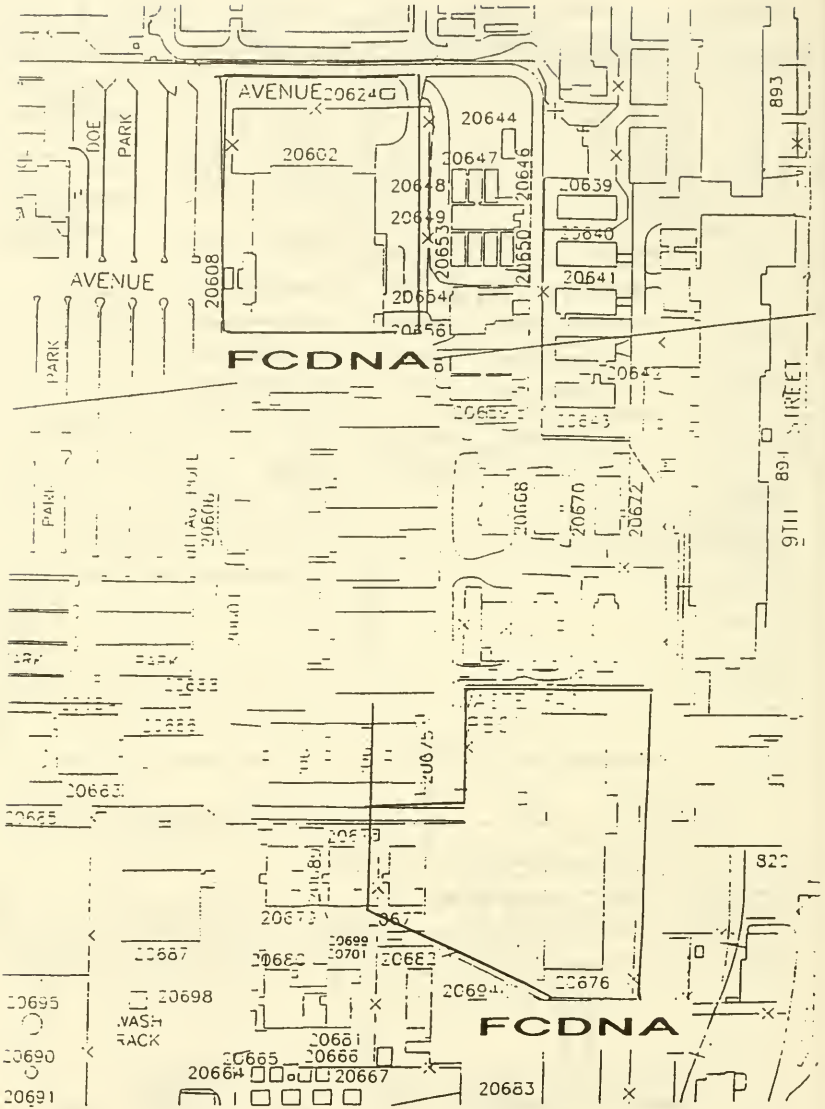
Building Number	Building Occupant	Realign. Location	Existing Sq. Ft.	Description
613	FCT/ARA	Nellis	10083	R&D facility, currently used for storage
614	FCT/ARA	Nellis	5247	R&D facility, approx. 2000 SF office space
641	FCT/ARA	Nellis	1000	Unmanned storage, share 1/4 of facility
730	FCT/ARA	Nellis	2165	General office space
734	FCT/ARA	Nellis	11513	R&D facility, approx. 5000 SF office space
20362	FCDNA	Kelly	33924	591 SF TS rated conference room, 1000 SF TS Video Tele-Conference Center, 17000 SF secured access, 3000 SF Command Suite, 1700 SF training center remainder is general office space

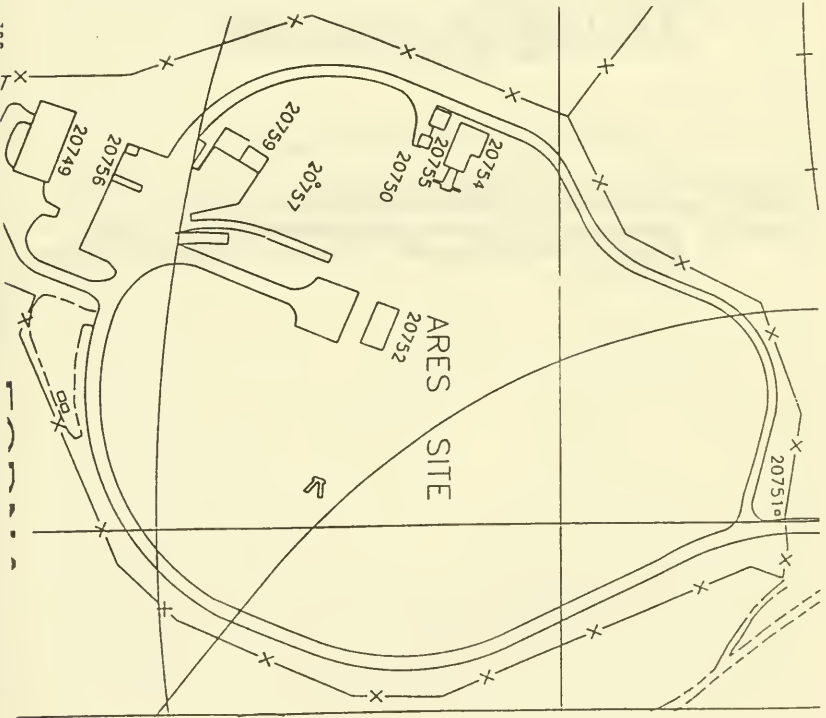
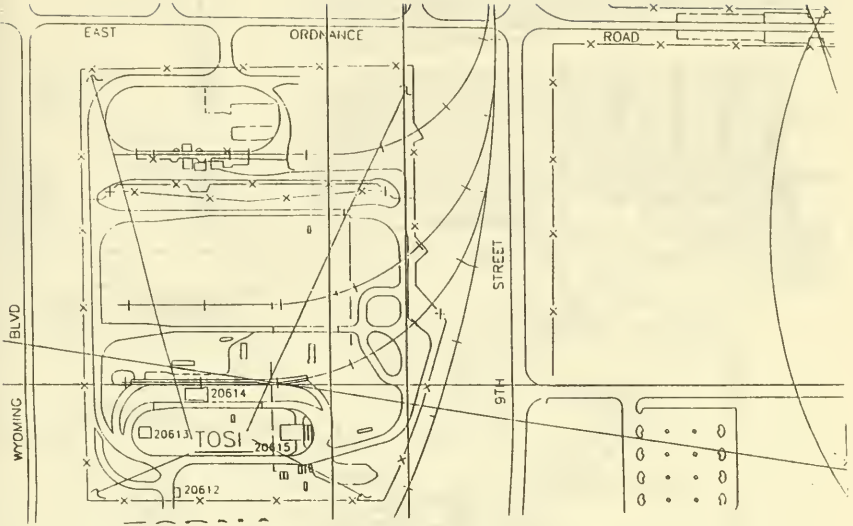
Building Number	Building Occupant	Realign. Location	Existing Sq. Ft.	Description
20363	FCT	Nellis	34691	2120 SF TS conference rooms, 400 SF vaults, 805 SF calibration lab and simulation and modelling area, remainder is office space
20364	FCDNA	Kelly	33496	100 SF vault, approx . 18000 SF controlled access and open secret office space, 1130 SF classified mail room, 500 SF technical library, remainder general office space
20366	FCDNA	Kelly	28	Unmanned guard house
20369	FCDNA	Kelly	580	Manned guard house & Visitor/ID/Vehicle control center, 120 SF ID processing center
20414	FCDNA	Nellis	14196	1500 SF office space, remainder warehouse (12696SF)
20602	FCDNA	Kelly	50389	Interservice Nuclear Weapons School, includes 2 TS auditoriums total 4200 SF, 450 SF vault, 4000 SF secured access, 15000 SF Classified Weapons Display Area (18 ft ceilings, 300 psf floor load rating), 5 classrooms total 9000 SF, remaining areas are hallways, offices and common areas
20602	FCDNA	Kelly	7764	Publishing Center, produces TS publications, 1000 SF administrative area, 6794 SF plant area
20612	TOSI	Kelly	402	Unmanned guard house
20613	TOSI	Kelly	950	Office building
20614	TOSI	Kelly	1818	Unmanned warehouse
20615	TOSI	Kelly	2498	Fabrication Shop
20616	TOSI	Kelly	600	Radiological Building, thick-concrete walled structure
20668	FCDNA	Kelly	4435	Unmanned warehouse
20676	FCDNA	Kelly	46175	Computer Facility, secured access to entire facility, 10000 SF highly secure (TS) computer area (Requires special level of grounding, HVAC, UPS and back-up generator), 8000 SF DASAC (nuclear weapons library and repository - 20000 SF required), 400 SF operations center, 500 SF training center, 1000 SF micro-lab, 10000 SF Nuclear Stockpile TS area, 12000 SF Publishing Center storage
20677	FCT	Nellis	4559	Unmanned warehouse
20707	FCDNA	Kelly	327	Guard house for 20676

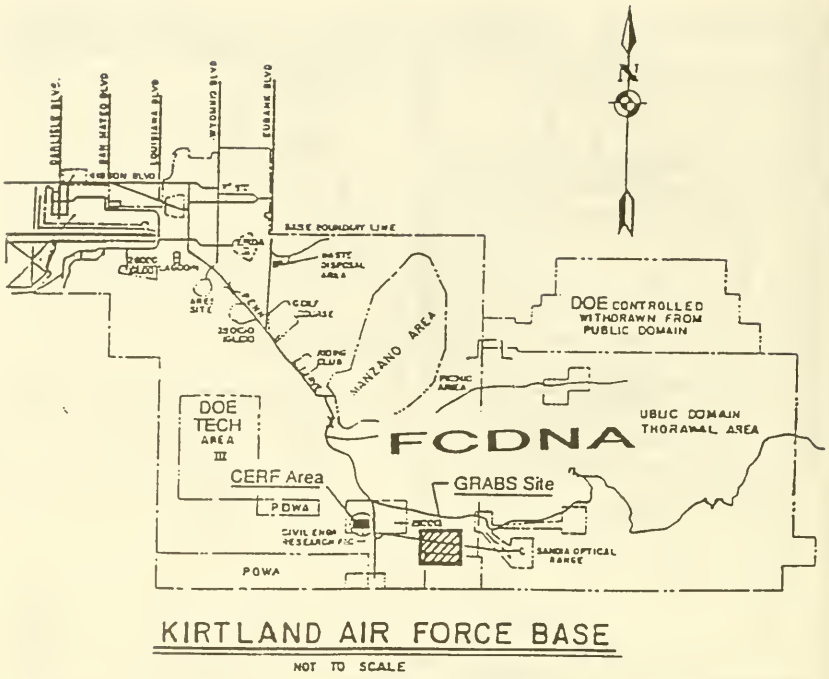
Building Number	Building Occupant	Realign. Location	Existing Sq. Ft.	Description
20749	ARES	Kirtland	8624	
20750	ARES	Kirtland	915	
20751	ARES	Kirtland	100	
20752	ARES	Kirtland	7587	
20754	ARES	Kirtland	3652	
20757	ARES	Kirtland	0	
20759	ARES	Kirtland	1248	
27925		Kelly	0	Training sites (also 27926, 27927, 27928), belong to Kirtland AFB but utilized for training by the Interservice Nuclear Weapons School, operated by FCDNA. The sites total 6 acres and are seeded with Thorium Hydroxide (radioactive), utilized for simulating hazardous response training.
29022	FCT/ARA	Nellis	700	Explosives Storage Bunker
29023	FCT/ARA	Nellis	700	Explosives Storage Bunker
29024	FCT/ARA	Nellis	100	Explosives Storage Box
29025	FCT/ARA	Nellis	700	Explosives Storage Bunker
29026	FCT/ARA	Nellis	700	Explosives Storage Bunker
29094	TRS	Kirtland	12040	Thermal Radiation Testing Site
57101	FCT/ARA	Nellis	8220	Unmanned warehouse and assembly area
99990	FCT/ARA	Nellis	0	Giant Reusable Air Blast Simulator (GRABS) site, includes 20 ft diameter shock tube on approximately 155 acres
		Total	312126	









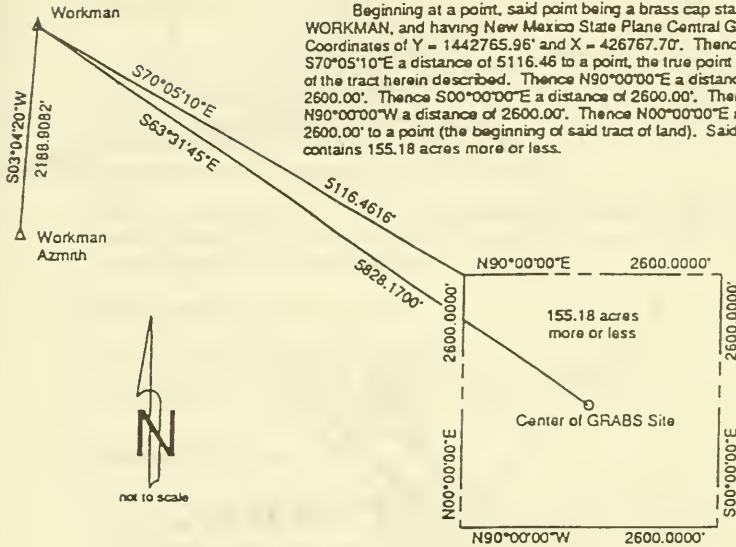


(a) General location map.

Figure 1.2. Location of the Civil Engineering Research Facility (CERF) and the Giant Reusable Air Blast Simulator (GRABS) Site located on Kirtland Air Force Base, New Mexico.

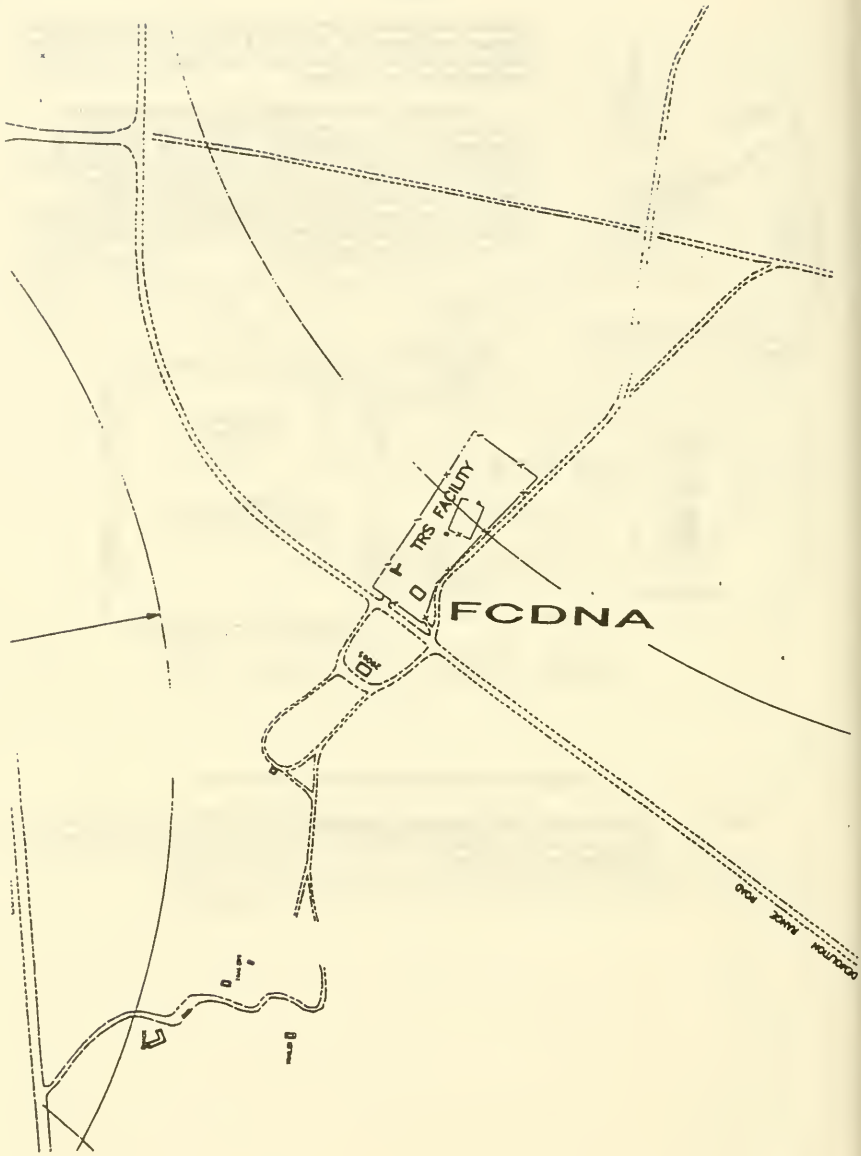
A tract of land situated in Bernalillo County, State of New Mexico, in the Southern 1/2 of Section 36, Township 9 North, Range 4 East, and the Northern 1/2 of Section 1 Township 8 North, Range 4 East, and more particularly described as follows:

Beginning at a point, said point being a brass cap stamped WORKMAN, and having New Mexico State Plane Central Grid Coordinates of $Y = 1442765.96'$ and $X = 426767.70'$. Thence from $S70^{\circ}05'10''E$ a distance of 5116.46 to a point, the true point of beginning of the tract herein described. Thence $N90^{\circ}00'00''E$ a distance of 2600.00'. Thence $S00^{\circ}00'00''E$ a distance of 2600.00'. Thence $N90^{\circ}00'00''W$ a distance of 2600.00'. Thence $N00^{\circ}00'00''E$ a distance of 2600.00' to a point (the beginning of said tract of land). Said tract contains 155.18 acres more or less.



(b) Specific GRABS Site land survey description.

Figure 1.2. Location of the Civil Engineering Research Facility (CERF) and the Giant Reusable Air Blast Simulator (GRABS) Site located on Kirtland Air Force Base, New Mexico (Concluded).



**REQUIREMENTS FOR INWS TO MOVE FROM KIRTLAND AIR FORCE
BASE TO KELLY AIR FORCE BASE**

1. **School House:** 50,389 square feet.

- 2 Auditoriums cleared for Top Secret, 4200 SF total.
 - Vault cleared for Top Secret, 450 SF.
 - Classified Weapons Display Area cleared to Secret/RD with CNWDI, 20,000 SF. (18 foot high ceilings 300 psf floor load rating capacity).
 - 5 Classrooms 4,000 SF secured access, 13,000 SF total.
 - Remaining areas are hallways, offices and common areas.
- **NOTE:** Look at a MII.CON. DASIAC library is moving to Kirtland and will become part of the school. They have ask for 20,000 SF of classified storage, 5,000 SF of that being environmentally controlled storage.

2. **Training Sites:** 4 sites totaling 6 acres.

- Used for simulating hazardous response training.
 1. The sites are seeded with Thorium Hydroxide (radioactive)
- Sites will require wreckage (i.e. aircraft parts, vehicles)

3. **Increased TDY funding:**

- Guest Speakers from the local area (i.e. Sandia, DOE AL, Los Alamos) would require funding, this is 90% of our EOD, FONAC and SONAC curriculum. Additionally, asking someone to take one from their schedule is different from asking them to travel to Texas for one day.

4. **Satellite Link:**

- Used for Distance Learning Laboratory.
- Video Conferencing with the center of excellence in Albuquerque.

5. **BOQ/BEO:**

- Billeting for approximately 150 students per month. Several being VIP's (senior military and civilian equivalent).

6. **Manning:**

- TDY Instructor Enhancement (man-days-per-year FY-94)
 1. 348
- Mobile Training Teams (MTT) (man-days-per-year FY-94)
 1. NWO 195
 2. SONAC 79
 3. NETOPS 124

7. **DOE/INWS Interface:**

- **INEOD:** Students at INWS Monday & Friday, at Sandia Tuesday - Thursday
 1. They use trainers at Sandia that are not available at INWS.
- **Safety and Security Course:** Conducted at INWS with 50% being taught by DOE personnel.
- **SONAC:** Taught at INWS with 50% being guest speakers from DOE

- **FONAC:** Taught at INWS with 85% being taught by guest speakers and 1/2 day of it taking place in DOE's Emergency Operations Center.
- **NHTC:** 25% taught by guest speakers. Additionally 1/2 day emergency room exercise taught at VA Hospital.

8. WDA:

- Require Secret/RD CNWDI clearance
- Displays owned by Air Force Museum, Atomic Museum, and Sandia Labs.

NOTE: Containers not available for most displays. Therefore, they will require crating and shipped via contract carrier. SST's can not carry crates, no wooden floor to nail crates down.

INWS MOVE TO KELLY AFB

IMPACT STATEMENT

1. The INWS maintains four radiation training sites located in the Northeast region of Kirtland AFB. The training sites were established in the early 1960s to train military personnel in alpha radiation monitoring and decontamination at simulated nuclear weapons accident sites. To simulate an accident, thorium hydroxide sludge was seeded on the training sites; this process was repeated annually. These training sites are unique--nowhere else can members of nuclear emergency response teams get realistic training on contaminated training sites. The loss of the training sites as a result of the INWS relocating to Kelly AFB would result in the severe degradation in the training provided during the Nuclear Emergency Team Operations (NETOPS) Course. The NETOPS is an 8-day course designed for potential members of a nuclear emergency team and is the INWS course with the highest annual student throughput (253 in FY 94) of any INWS offerings. After 4 days of intense classroom studies, NETOPS students are required to apply what they've learned in the classroom on the training sites. Only in the environment of the training sites can the students experience the realism of actual radiation detection/monitoring, contamination patterns and plotting, and personnel/equipment decontamination. The other opportunity to experience the realism is on an actual nuclear weapons accident site. Over 20 years of student critiques reveal that being able to operate and learn on active training sites is the most beneficial aspect of being trained at the INWS. Students are able to apply newly learned skills on the training sites. In doing so, many prior misconceptions about what they should or should not do in an actual response situation are removed. The students gain confidence in their ability, and their equipment's ability, to function in a radioactive environment. This environment cannot be effectively simulated by any other means, nor can this much needed confidence level be achieved without actual contact with radioactive materials in an operational field structure. The impact of losing these sites in terms of cost is non-quantifiable. In terms of realistic training, the impact is non-justifiable. The INWS and nuclear accident response personnel need these sites.

2. The INWS has numerous interactions with Sandia Laboratories and Los Alamos National Labs. Several INWS courses have been developed, (Joint Nuclear Explosive Ordnance Disposal (JNEODC) Course and Joint DoD/DOE Safety and Security Executive Course - S2) that share Sandia and INWS facilities and instructors. Other courses, such as Flag and Senior Officer Nuclear Accident Courses rely heavily on DOE guest speakers and spend 1/2 day in DOE's Emergency Operations Center. Moving the INWS to Kelly AFB would severely degrade the courses listed above. The JNEODC would no longer be an INWS course, as the Sandia portion uses weapons trainers not available at the INWS--an integral part of the course. Moving to Kelly AFB would result in the loss of DoD/DOE "jointness," which has taken so long to build into

the courses listed above. The Sandia instructors supporting these courses are able to walk to the INWS to present a one-hour block of instruction. They say they cannot justify a trip to San Antonio to do the same. This INWS/SANDIA/Los Alamos interaction should flourish, but...it will be difficult, if not impossible, to maintain from Kelly AFB.

OTHER PERTINENT INFORMATION INFORMATION TECHNOLOGY

TOP SECRET COMPUTER FACILITY (Kelly AFB)

- Square Footage: 7885 Sq. Ft
- Conditioned Power
- Uninterrupted power supply
- Raised Floor
- Environmental controls: Temperature/Humidity
- Backup Generators
- Open Top Secret Certification
- Top Secret tape vault: 4000 nine-track tapes; 500 TK-50 or equivalent
- Production Control area
- Fire Suppression
- Alarms/Detection
- 10' Ceilings (Raised Floor to Ceiling)
- Grounding (Equipment, Communications, and Cabling)
- Communications: See communications sections
- Number and types of equipment
 - 4 6000 series VAX servers footprint (in feet): 3x3
 - 5 SA600 cabinets footprint (in feet): 2x3
 - 1 H9 cabinet footprint (in feet): 2x3
 - 5 HSC controllers footprint (in feet): 2x3
 - 2 TU81 tape units footprint (in feet): 2x3
 - 1 TU79 tape unit footprint (in feet): 3x3
 - 3 SC008 star couplers footprint (in feet): 2x3
 - 1 DP01 high speed printer footprint (in feet): 3x3
 - 9 4000 series VAX servers footprint (in feet): 2x3
 - 6 BA2xx expansion boxes footprint (in feet): 2x2
 - 1 19" rack with infoserver 150 footprint (in feet): 2x3
 - 1 19" rack with infoserver 100 footprint (in feet): 2x2
 - 12 consoles footprint (in feet): 1x2
 - 3 CA324 line printers footprint (in feet): 2x3
 - 4 tape racks footprint (in feet): 1x4
 - 4 dual 8mm tape units footprint (in feet): 2x3 (2 stacks of 2)
 - 5 PCs with tower CPUs
 - 5 VAX workstations footprint (in feet): 3x3

SECRET COMPUTER FACILITY (Nellis AFB)

- Square Footage: 400 Sq. Ft Minimum
- Conditioned Power
- Uninterrupted power supply
- Raised Floor
- Environmental controls: Temperature/Humidity
- Backup Generators
- Open Top Secret Certification
- Top Secret tape vault: 4000 nine-track tapes; 500 TK-50 or equivalent

- Production Control area
- Fire Suppression
- Alarms/Detection
- 10' Ceilings (Raised Floor to Ceiling)
- Grounding (Equipment, Communications, and Cabling)
- Communications: See communications sections
- Number and types of equipment
 - To be determined

PRIMARY COMMUNICATIONS FACILITY (Assume collocation w/TS computer facility, Kelly AFB)

- Top Secret Certified
- Uninterrupted Power
- Conditioned Power
- Environmental controls: Temperature/Humidity
- Backup Generators
- Grounding
- Alarms/Detection
- Fire suppression
- Safes for COMSEC
- COMSEC destruction
- Circuit termination (direct; modem/dial-up; STU III)
- Encryption
- Number and types of equipment
 - To be determined

PRIMARY COMMUNICATIONS FACILITY (Assume collocation w/Secret computer facility, Nellis AFB)

- Secret Certified
- Uninterrupted Power
- Conditioned Power
- Environmental controls: Temperature/Humidity
- Backup Generators
- Grounding
- Alarms/Detection
- Fire suppression
- Safes for COMSEC
- COMSEC destruction
- Circuit termination (direct; modem/dial-up; STU III)
- Encryption
- Number and types of equipment
 - To be determined

COLLATERAL COMMUNICATIONS FACILITIES (Sites other than Primary Comm Facility)

- Top Secret/Secret Certified
- Uninterrupted Power
- Conditioned Power
- Backup Generator
- Grounding
- Alarms/Detection
- Fire Suppression

- Circuit Termination (Direct, Modem/Dial-up; STU III)
- Encryption Equipment
- Number and types of equipment
 - To be determined

TOP SECRET MAGNETIC MEDIA & SYSTEM MEDIA OFFSITE STORAGE (Kelly AFB)

- 50 Top Secret 9-Track Tapes
- 10 Secret 8mm Tape Cartridges
- 10 Unclassified 8mm Tape Cartridges
- Fire Suppression
- Top Secret Certified Storage Facility or Containers
- Environment Controls for Media Storage

SECRET MAGNETIC MEDIA & SYSTEM MEDIA OFFSITE STORAGE (Nellis AFB)

- 10 Secret 8mm Tape Cartridges
- 10 Unclassified 8mm Tape Cartridges
- Fire Suppression
- Secret Certified Storage Facility or Containers
- Environment Controls for Media Storage

TOP SECRET DESTRUCTION FACILITY (Kelly AFB)

- Top Secret Certified Shredder or incinerator
- Current FCDNA/FCC Shredder
- Capable of Destroying
 - Paper - 11" X 17"
 - 9 - track Tape
 - Diskettes (5.25" & 3.5")
- Volume
 - 10 Tapes/Month
 - 20 Boxes Paper/Week
 - 20 Diskettes/Month
- Safety
 - Noise Control/Suppression
 - Air Handling

SECRET DESTRUCTION FACILITY (Nellis AFB)

- Top Secret Certified Shredder or incinerator
- Current FCDNA/FCC Shredder
- Capable of Destroying
 - Paper - 11" X 17"
 - Diskettes (5.25" & 3.5")
- Volume
 - 5 Tapes/Month
 - 10 Boxes Paper/Week
 - 10 Diskettes/Month
- Safety
 - Noise Control/Suppression
 - Air Handling

ADP CLASSROOM (Kelly AFB)

- Accommodate
 - 10 Students w/10 PCs & Workspace
 - 1 Instructor w/PC
- Overhead Capability - Large Screen
- VCR & Large Screen TV
- White Board 5' X 8' Minimum
- Training Materials Storage (Cabinets)
- On-line Printer(s)
- Copy Board 5' X 8' Minimum
- Controlled Lighting (Dimmers or Sep Banks)

MICROCOMPUTER LAB (Kelly AFB)

- 1000 Sq. Ft
- 8 Workbenches for PC Technicians
- Power Distribution
- Cabinets for Spare Parts & Tools
- Controlled Access (Pilferage)
- Lighting
- Anti-Static Carpet or Tile Flooring
- Reference Library (HW/SW)
- Environmental Controls - Temp/Humidity
- Lockers (Personal)
- First Floor Access or Elevator
- Access to ADP Delivery, Storage, Warehouse

MICROCOMPUTER LAB (Nellis AFB)

- 400 Sq. Ft Minimum
- 2 Workbenches for PC Technicians
- Power Distribution
- Cabinets for Spare Parts & Tools
- Controlled Access (Pilferage)
- Lighting
- Anti-Static Carpet or Tile Flooring
- Reference Library (HW/SW)
- Environmental Controls - Temp/Humidity
- Lockers (Personal)
- First Floor Access or Elevator

ADP DELIVERY, STORAGE, WAREHOUSE (Kelly AFB)

- Square Feet
 - Delivery - 200 Sq. ft
 - Storage - 645 Sq. ft
 - Warehouse (Hold Shipping/Excess) - 400 Sq. ft

Delivery

- 6' Wide Clearance; 8' High
- Loading Dock
- Vehicle Access - Up to Semi
- First Floor Access

Storage

- Controlled Access (Pilferage/Theft)
- Fire Suppression
- 6' W X 8' Clearance (Double Doors)
- Minimum 10' Ceilings for Shelving

Warehouse

- Controlled Access (Pilferage/Theft)
- 6' X 8' Clearance
- Forklift/Pallet Access/Storage
- Vehicle Access - Semi
- Loading Dock

COMMUNICATIONS/CIRCUITS - KELLY LOCATION

- DREN Access - HPCs/Crays
- GCCS/TS3
- HQDNA - Unclassified LAN/WAN
 - Classified LAN/WAN
- DOE
- Video Teleconferencing Center (Secret High)
- CAFRMS/MOMS
- JA
- INTERNET/MILNET
- DDN/DISN
- AUTODIN
- Telephone
 - Voice
 - Data - Conditioned
 - STU III
 - Dial Up
 - Secure to Top Secret
 - Multi-line

COMMUNICATIONS/CIRCUITS - NEVADA LOCATION

- DREN Access - HPCs/Crays
- New Mexico - ARES/LBTS/Simulation Facility
- HQDNA - Unclassified LAN/WAN
 - Classified LAN/WAN
- Mercury
- Sandia Labs
- LANL
- NM Technet
- CAFRMS/MOMS
- Contractor Sites
- INTERNET/MILNET
- DDN/DISN
- Video Teleconferencing Center (Secret High)
- AUTODIN
- Telephone
 - Voice
 - Data - Conditioned
 - STU III

- Dial Up
- Secure to Top Secret
- Multi-line

COMMUNICATIONS/CIRCUITS - KAFB LOCATION

- DREN Access - HPCs/Crays
- Nevada
- HQDNA - Unclassified LAN/WAN
 - Classified LAN/WAN
- INTERNET/MILNET
- DDN/DISN
- AUTODIN
- Telephone
 - Voice
 - Data - Conditioned
 - STU III
 - Dial Up
 - Secure to Top Secret
 - Multi-line

NETWORK/CABLE PLANT - KELLY LOCATION

UNCLASSIFIED

- LAN for 350 Users & 50 Printers (Cable Drops)
- Backbone in each Facility
- Campus Configuration
 - Routers - Secure
 - Fiber
 - Bridges
 - Crypto
 - Hubs
 - Firewalls

NETWORK/CABLE PLANT - NEVADA LOCATION

UNCLASSIFIED

- LAN for 110 Users & 20 Printers (Cable Drops)
- Backbone in each Facility
- Campus Configuration
 - Routers - Secure
 - Fiber
 - Bridges
 - Crypto
 - Hubs
 - Firewalls

NETWORK/CABLE PLANT - KAFB LOCATION

UNCLASSIFIED

- LAN for 25 Users & 5 Printers (Cable Drops)
- Backbone in each Facility

- Campus Configuration
 - Routers - Secure
 - Fiber
 - Bridges
 - Crypto
 - Hubs
 - Firewalls

NETWORK/CABLE PLANT - KELLY LOCATION

CLASSIFIED - SECRET

- LAN for 150 Users & 3 Printers (Cable Drops)
- Backbone
 - Fiber/Unshielded Twisted Pair
 - Secure Facility or Conduit
 - TEMPEST Certification
 - Cable Plant Separation
- Campus Configuration
 - Crypto
 - Routers
 - Fiber
 - Firewalls
 - Hubs

NETWORK/CABLE PLANT - KELLY LOCATION

CLASSIFIED - TOP SECRET

- LAN for 50 Users & 5 Printers (Cable Drops)
- Backbone
 - Fiber/Unshielded Twisted Pair
 - Secure Facility or Conduit
 - TEMPEST Certification
 - Cable Plant Separation
- Campus Configuration
 - Crypto
 - Routers
 - Fiber
 - Firewalls
 - Hubs

NETWORK/CABLE PLANT - NEVADA LOCATION

CLASSIFIED - SECRET

- LAN for 20 Users & 2 Printers (Cable Drops)
- Backbone
 - Fiber/Unshielded Twisted Pair
 - Secure Facility or Conduit
 - TEMPEST Certification
 - Cable Plant Separation

- Campus Configuration
 - Crypto
 - Routers
 - Fiber
 - Firewalls
 - Hubs

MEMORANDUM FOR FCTO (LTC(P) GRIMES)

SUBJECT: Transportation Requirements for Transfer of PHETS Activities to NTS

1. Per your request of 9 March 1995, the following represents preliminary estimates of the transportation assets required to transfer the Permanent High Explosive Test Site (PHETS) facilities to the Nevada Test Site (NTS). This is a coordinated estimate between the PHETS Manager (MSGT Stuart) and the Construction Branch Chief (MAJ Hein).
2. Transfer of Mobile Equipment/Facilities. FCTO would require the following trucks to move mobile equipment.
 - 30ea Tractors (to haul administrative trailers, GFE trailers and GFE vans)
 - 75ea 40' Moving Vans (to haul loose equipment and furniture)
 - 215ea 40' Flatbed Tractor Trailers (for GFE construction Equipment, 2ea Batch plants, the ANFO plant, 18ea Instrumentation Containers, 28ea Hydro-Plus Instrumentation Containers, the MIDDLE KEY towers/lifting systems and the cable stored in the cable yard)
3. Recommended the following structures not be transfer. It would be cost prohibitive to disassemble at PHETS, transport and reassemble at NTS the following structures: the PHETS Latrine, the Foamdome, 2ea Balloon Hangars, the PMR Warehouse, the Carpenter shop, the Maintenance Shop, 2ea Allied Signal Warehouses and the Test Control Center (TCC). If transport of the warehouses, hangars, shops and TCC were required, an additional 15ea flat bed tractor trailers would be required. The cost of disassemble, transport and reassemble of metal buildings is estimated at 1.5 to 2 times the cost of a new procurement and erection.
4. Site Clean-up Requirements. It is assumed that FCDNA would be required to return all PHETS facilities to native conditions. This would require the removal and clean up of current and previously unrecovered test beds (list attached), 18ea instrumentation bunkers, the batch plants' foundations and facilities, the cable yard, the ANFO plant ramps, the remaining PHETS basecamp facilities and an estimated 150 miles of cable trenches.
5. This estimate may not reflect all GFE Instrumentation equipment maintained at PHETS by Allied Signal. MSGT Stuart will refine the transportation requirements as equipment is identified for disposal via transport. MAJ Hein will develop an estimate for the costs associated with range clean-up.
6. POC is the undersigned at 6-8606.


 ROGER A. HEIN
 MAJ. EN
 Chief, Construction Branch

PHETS RANGE STRUCTURES

STRUCTURE/TESTBED	STATUS
Air Force Structures # 1, 2, 3	Active Testbeds.
Large Test Structure - 1	Active Testbed.
MINOR UNCLE Crater	Infill On-going.
MIGHTY NORTH	Removal direction given.
MISERS GOLD	Awaiting direction to remove.

DIPOLE MIGHT Testbeds	Awaiting direction to remove.
DISTANT IMAGE Testbeds	Awaiting direction to remove.
DIPOLE EAST 25	Awaiting direction to remove.
NATO Structure	Awaiting direction to remove.
DIPOLE GATE 4 & 6	Awaiting direction to remove.
DIPOLE EAST 19 & 20	Awaiting direction to remove.
HUSKY JAGUAR II	Awaiting direction to remove.
DISTANT RUNNER (Queen 15 Site)	Awaiting Funding.

FCT RELOCATION ANALYSIS

FCT warehouse and storage requirements to meet mission needs is 70,000 sq. ft. This includes that currently available at Kirtland AFB and at White Sands Missile Range.

Additionally, require 20,000 sq. ft. of workspace for calibration and equipment maintenance activities.

FCT prefers to have office space and at least 30,000 sq. ft. of storage/work areas on Nellis AFB proper due to the daily base support requirements.

The remainder of storage/work areas should be in close proximity to the test range facilities. Current allocation of space at the WSMR test site is:

Admin area	800
Admin support	3,600
Warehouse	1,800 (includes Stallion and bunkers)
Laboratory	800
Vehicle Maintenance	1,000
Carpenter Shop	2,400
Test Control Center	2,500 (climate controlled)

INTERSERVICE SUPPORT AGREEMENT BETWEEN 1606TH AIR BASE WING AND FIELD
COMMAND, DEFENSE NUCLEAR AGENCY

1. AUTHORITY: DOD Regulation 4000.19R, March 84, Defense Regional Inter-service Support (DRIS) Regulation.

2. GENERAL:

a. This agreement established a basis for interservice support between the supplying agency, 1606th Air Base Wing, referred to herein as 1606 ABW, and the receiving agency, Field Command, Defense Nuclear Agency, referred to herein as FCDNA, for logistical, administrative, supply and maintenance support services.

b. Requirements and authorization of support requested under this agreement will be determined by the requesting agency. Support furnished under this agreement will be provided IAW the provisions of regulations and directives applicable to the support furnished or as outlined in the agreement.

c. This agreement covers both normal support requirements as described herein and emergency and exercise contingency requirements as described herein and as further specified in pre-coordinated Emergency and Exercise Contingency Operations Plans [OPLANS] and Orders [OPORDERS] copies of which will be provided to the Supplier by the Receiver.

d. Any support services not specifically outlined in this agreement shall remain with the party requiring support. Although every effort has been made to identify all mission-dedicated support requirements, it is anticipated that infrequent or unforeseen miscellaneous support or supply requirements will be satisfied by the Supplier, within capabilities, upon request of the Receiver.

e. No new manpower requirements have been identified other than those already transferred to Host.

f. Programmed manpower authorizations for Field Command Defense Nuclear Agency for fiscal year 1987 are: Officers, 150; Enlisted, 84; Civilians, 302. These authorizations exclude FCDNA operating field locations.

SUPPORT AGREEMENT		DOCUMENT IDENTIFIER (***-**-****)			
1. SUPPLIER (Name, Office Symbol & complete address)		2. MAJOR COMMAND CODE	3. SUBORDINATE COMMAND CODE		
1606th Air Base Wing/LGX Kirtland AFB NM 87117-5000		FR44YY	FR440Y		
3. RECEIVER (Name, Office Symbol & complete address)		4. PRESENT AGREEMENT NUMBER	5. TERMINATION DATE (Month and Year)		
Field Command Defense Nuclear Agency/FCL Kirtland AFB NM 87117-5000		FB4469-87289-006			
GEOGRAPHICAL AREA OR COUNTRY CODE: 35		6. SUPERSEDED AGREEMENT NUMBER	7. 1093		
		FB4469-81337-006			
8. DODAAC/FEOSTRIP NUMBER		9. MAJOR COMMAND CODE			
HD1102		HD2001			
GEOGRAPHICAL AREA OR COUNTRY CODE: 35		10. SUBORDINATE COMMAND CODE			
		HD1102			
SUPPORT AGREEMENT RESOURCE SUMMARY					
A. CATEGORY CODES	B. SUPPLIER				
	C. MAN YEARS		D. GROSS ADDITIONAL COSTS		
	MILITARY	CIVILIAN	TOTAL	NON-REIMBURSEABLE	REIMBURSEABLE
AA	0	0	164.00		164.00
AB	7	7.0	164,135.00	11,745.00	152,390.00
AC	0	4.0	76,768.00	0	76,768.00
AD	0	0	0	0	
AE	0	0	0	0	
AF	0	1	82,795.00		82,795.00
AG	0	0	0		0
AH	1	2	7,218.00	1,678.00	5,540.00
AI	18.7	3	321,303.00	313,749.00	7,554.00
AJ	0	0	0	0	
AK	0	0	0		0
AL	0	0	0	0	
AM	0	0	0		0
AN	0	1	0	0	
AO	5	1.5	40,552.00	10,067.00	30,485.00
AP	0	1	553,613.00	0	553,613.00
AQ	0	0	0	0	
AS	3	5	23,737.00	5,033.00	16,704.00
AV	0	0	0	0	
AW	8	2.1	83,006.00	13,422.00	69,584.00
TOTAL	CONTD.				
11. RECEIVER DATA (When applicable, provide similar data required in blocks 6a, 6 and 7)					
12. SAVINGS ACCRUED/COSTS INCURRED MAN YEARS SAVED EXPENDED TO FEDERAL GOVERNMENT					
13. REASONABLE ALTERNATIVE		14. COSTS		15. MAN YEARS SAVED	
FY: 87		0		FY: 87	
0		0		0	
FY: 87		0		FY: 87	
0		0		0	
16. FUNDING AND REIMBURSEMENT ARRANGEMENT (Include all details concerning billing/reimbursement procedures, funding limitations, and the appropriate "billing/submit to" addresses. Also list those references which specifically apply to the type of organization being supported.)					
Monthly billings will be submitted on SF 1080 to Field Command, Defense Nuclear Agency, Attn: FCCFF, Kirtland AFB NM 87117-5000.					
Where "0" appears in block 6b and c above, the amounts are insignificant or currently unidentifiable. Any identifiable and documented costs incurred will be reimbursed by Field Command, Defense Nuclear Agency.					

SUPPORT AGREEMENT		1. DOCUMENT IDENTIFIER ("X" over)			
3. SUPPLIER (Name, Office Symbol & complete address) 1606th Air Base Wing/LGX Kirtland AFB NM 87117-5300 GEOGRAPHICAL AREA OR COUNTRY CODE: 75		2a. MAJOR COMMAND CODE: FR44YY			
		2b. SUBORDINATE COMMAND CODE: FR44DY			
		3a. PRESENT AGREEMENT NUMBER: FB4469-87289-006			
		3b. SUPERSEDED AGREEMENT NUMBER: FR4469-81377-006			
5. RECEIVER (Name, Office Symbol & complete address) Field Command Defense Nuclear Agency/FCL Kirtland AFB NM 87117-5300 GEOGRAPHICAL AREA OR COUNTRY CODE: 75		4a. ODDAAC/PEDSTRIP NUMBER: HD1102			
		4b. MAJOR COMMAND CODE: HD2001.			
		4c. SUBORDINATE COMMAND CODE: HD1102			
6. SUPPORT AGREEMENT RESOURCE SUMMARY					
A. CATEGORY CODES	B. MAN YEARS		C. SUPPLIER		
	MILITARY	CIVILIAN	TOTAL	NON-REIMBURSEABLE	REIMBURSEABLE
AX	0	0	15,000.00	0	15,000.00
AY	0	0	0	0	0
AZ	0	0	0	0	0
BA	0	0	0	0	0
BB	0	0	0	0	0
BC	1	0	2,878.00	1,678.00	1,200.00
BD	4	2	0	0	0
BF	0	0	0	0	0
BG	0	0	0	0	0
BS	0	0	0	0	0
BJ	1	0	1,678.00	0	1,678.00
BV	0	0	0	0	0
BW	3	0	5,033.00	5,033.00	0
ME	1	0	26,845.00	0	26,845.00
MG	4	3	17,656.00	6,713.00	10,943.00
SA	0	0	0	0	0
SC	0	0	0	0	0
SE	0	0	0	0	0
SG	1.7	3	0	0	0
SO	0	0	3,000.00	0	3,000.00
TOTAL	CONTO.				
5a. RECEIVER DATA (When applicable, provide similar data furnished in blocks 5b, 5 and 6)					
7. SAVINGS ACCRUED COSTS INCURRED MAN YEARS SAVED EXPENDED TO FEDERAL GOVERNMENT					
7a. SAVINGS		7b. COSTS		7c. MAN YEARS SAVED	
PY.		PY.		PY.	PY.
8. FUNDING AND REIMBURSEMENT ARRANGEMENT (Include all details concerning billing/reimbursement procedure, funding limitations, and the appropriate "billing/submit thru" addresses. Also list those references which specifically apply to the type of organization being supported.)					

ANNEX A

SPECIFIC PROVISIONS

CATEGORY	SUPPLIER WILL	RECEIVER WILL
(AA) COMPUTER AND DATA PROCESSING (REIMBURSABLE)	1. Provide Standard Air Force Civilian Payroll data processing support within the capabilities of the base level computer system. 2. Provide other non-mission data processing support on a time and resources available basis, each occasion being subject to the approval of the Supplier.	1. Comply with Supplier's policies and procedures. 2. Comply with Supplier's policies and procedures.
(AB) FINANCE AND ACCOUNTING (REIMBURSABLE)	1. Will provide normal accounting and finance support, including but not limited to:	1. Comply with Supplier's policies and procedures.
Centralized Accounting and Finance Resource Management System (CAFRMS), Field Command will assume responsibility for the accounting and reporting of all FCDNA allotted funds. The 1606 ABW Accounting and Finance Office will continue disbursing and collecting treasury monies for Field Command appropriations.	a. Civilian payroll data required for OSD reporting. b. Normal finance and accounting services for FCDNA personnel. (i.e., Military Pay, Travel) c. Accounting and finance support of FCDNA off-line supply and procurement transactions, including GSA and depot requisitioning. 2. Provide normal budgeting support for nonreimbursable support provided. As mutually understood and agreed, Receiver reporting data shall be provided in the media and format necessary to satisfy FCDNA budget reporting requirements.	2. Budget for reimbursable support and provide pertinent data as required by Supplier.
(AC) CIVILIAN PERSONNEL SERVICES (REIMBURSABLE)	Provide support as specified in Annex B, Provision of Civilian Personnel Management Service.	Reimburse Supplier in accordance with agreement.
(AD) LEGAL (NONREIMBURSABLE)	1. Provide certain legal support to include claims service, legal assistance, military affairs, procurement review, military justice, legal stenography, court reporting, other legal services and support at the request of Receiver	1. Comply with Supplier's policies and procedures.

CATEGORYSUPPLIER WILLRECEIVER WILL

1. Legal Assistance (cont'd)

in coordination with the General Counsel DNA.

2. UCMJ Assistance

2. Furnish support to FCDNA Army and Navy unit commanders for exercise of courts-martial, non-judicial punishment, and related administrative jurisdiction of U.S. Army and Navy personnel of FCDNA.

2. Retain general, special, and summary courts-martial jurisdiction over all military personnel assigned to FCDNA. The Senior FCDNA Officer of the AF Element is designated Commander of Air Force Personnel of that element for Article 15 authority.

(AE) MAIL PICK-UP AND DELIVERY (NONREIMBURSABLE)

Include Receiver in Supplier's pouch mail service and provide Receiver updated listing of activities Supplier offers pouch mail service.

Comply with Supplier's policies and procedures.

(AF) CUSTODIAL SERVICES (REIMBURSABLE)

Provide normal custodial and janitorial services in assigned administrative office space and provide additional unique custodial services as requested.

Budget and reimburse for normal custodial and janitorial services in assigned administrative office space. Identify and reimburse for unique custodial services requested.

(AG) PURCHASING/ CONTRACTING (NONREIMBURSABLE)

Provide review of contractual documents as requested by Receiver.

Comply with Supplier's policies and procedures.

(AH) FIRE PROTECTION (REIMBURSABLE)

Provide fire prevention and protection to all Receiver areas, IAW AF regulations (except as modified and approved of by both parties). Service includes responding to fire alarms, preparing and maintaining current fire plans and run cards for each major facility; and testing and maintaining all fire protection equipment IAW NFPA/USAF standards.

Keep the 1606 ABW Fire Chief informed of types of hazardous materials which may be encountered in FCDNA facilities.

Reimburse Supplier for identifiable costs based on actual/estimated hours expended plus supplies and/or equipment used.

Furnish, service and replace all fire extinguishers. Maintain all fire lines within areas occupied by the Receiver.

(AI) POLICE SERVICES (REIMBURSABLE)

1. Law Enforcement Services

1. Provide protection of on-base property and personnel, and criminal investigative services.

1. Comply with Supplier's policies and procedures.

2. Escort for Classified Shipments

2. Provide escort, as required, for classified shipments not authorized to be shipped by commercial carriers and for con-

2. Reimburse the Supplier for TDY and other expenses relative to such escorts.

<u>CATEGORY</u>	<u>SUPPLIER WILL</u>	<u>RECEIVER WILL</u>
2. Escort for Classified Shipments (cont'd)	tract projects requiring access to FCDNA Controlled Areas.	
3. Alarm Support	3. Provide alarm support, including response to alarms in Receiver's facilities and containers. (Response times to alarms will not exceed 5 minutes. If an alarm malfunctions,	3. Comply with Supplier's policies and procedures. Building Custodians will respond upon initial notification of an alarm malfunction/activation and request guards as needed.
3. Alarm Support	a guard will be posted until the Building Custodian arrives and assumes responsibility. If the alarm is not repaired within 2 hours, the Security Police will provide a cleared guard to secure the facility until the alarm is repaired.)	
4. Alarm Tests	4. Conduct Alarm Tests with Receiver personnel for FCDNA-Controlled areas, rooms, and containers.	4. Coordinate Alarm Tests with Security Police Alarm Monitors and comply with applicable policies and directives.
5. Security Guards	5. Man existing Guard Posts at and within FCDNA areas as follows: a. FCDNA Main Compound-- Buildings 20362/3/4; 3 Guard Posts (8 hours per day, M-F). b. Computer Facility-- Building 20676; 1 Guard Post (24 hours per day, 7 days a week). c. ARES Facility--Building 20751; 1 Guard Post (24 hours per day, 7 days a week when the facility is activated). Establish additional security guard posts resulting from changes in Receiver mission or relocation of Receiver resources.	5. Coordinate requirements with 1606 ABW to provide them sufficient time to acquire additional guards.
6. Restricted/ Controlled Area Access	6. Provide access to 1606 ABW Restricted/ Controlled Facilities for Receiver personnel as required/authorized.	6. Submit request for access to appropriate 1606 ABW facilities in a timely manner.
7. Access to Manzano Restricted Area	7. Grant access to Receiver personnel upon proper certification of security clearances and verification of "need-to-enter." Receiver is exempt from frequency requirements	7. Verify access requests and certify security clearances as required.

<u>CATEGORY</u>	<u>SUPPLIER WILL</u>	<u>RECEIVER WILL</u>
7. Access to Manzano Restricted Area (cont'd)	of AFR 207-10. Honor Receiver Restricted Area badge credentials for access to Manzano Restricted Areas.	
8. Clearance Verifications	8. Accept Receiver verification of security clearances for access to Supplier facilities and information.	8. Accept Supplier verification of security clearances for access to Receiver facilities and information.
9. Security Program	9. Provide assistance as requested by Receiver.	9. Provide a security clearance program, badging, ID cards classification management, visitor control, certification to DOE, classified mail and material channels, security briefings and a security education program, internal security inspections for safeguarding classified information, and all aspects of the information security program IAW DNA standards and directives.
10. Physical Security	10. Provide initial Security Police response to physical security incidents at Receiver facilities and such investigation as needed to control the incident. Supplier may effect emergency entry into Receiver facilities as required under pertinent security directives.	10. Comply with Supplier security directives, to include the use of authentication/duress procedures and access rosters for alarm systems.
11. Information Security Incidents	11. Assist with investigations when requested by Receiver.	11. Conduct investigations of Receiver security incidents. COMSEC investigations may be referred to AFCC on incidents involving only COMSEC materials.
12. Periodic Security Surveys	12. Provide assistance as requested by Receiver.	12. Conduct periodic surveys of Receiver security programs and procedures IAW DNA standards and directives.
13. Privately Owned Vehicle Registration	13. Develop procedures for the registration of privately owned vehicles, procure and furnish required decal to FCDNA.	13. Comply with privately owned vehicle registration requirements. (FCDNA will register/re-register vehicles of personnel assigned to or employed by FCDNA.)
14. Identification Media	14. Maintain and issue Identification Media to military personnel (active and retired), military dependents, and authorized contractor personnel in accordance with Supplier guidelines.	14. Maintain and issue identification media for Receiver civilian personnel.
15. Firearms Storage and Registration	15. Develop firearms registration and storage requirements and provide storage as needed.	15. Comply with firearms registration and storage requirements.

<u>CATEGORY</u>	<u>SUPPLIER WILL</u>	<u>RECEIVER WILL</u>
16. Issue and Control of Restricted/Controlled Area Badges	16. Issue and control Receiver Restricted/Controlled Area Badges as requested for Supplier personnel. Letters of transmittal and acknowledged receipts will be used to account for issued badges. 1606 ABW will provide emergency backup support in issuing FCDNA Badges/ID cards in the event of an equipment failure in the FCSSV office.	16. Issue and control Supplier Restricted/Controlled Area Badges as requested for FCDNA personnel. Letters of transmittal and acknowledged receipts will be used to account for issued badges.
17. Confinement of Prisoners	17. Complete necessary arrangements for confinement of Receiver military prisoners.	17. Comply with Supplier's policies and procedures.
(AJ) HOUSING/ LODGING (NONREIMBURSABLE)		
1. Priority Housing	1. Provide quarters commensurate with rank for Field Command personnel occupying key positions as designated by Commander, FCDNA.	1. Provide reasonable advance notice of requirements.
2. Family Housing	2. Provide authorized Receiver personnel, housing as required and as available, on the same basis as Supplier personnel.	2. Comply with Supplier's policies and procedures.
3. Enlisted Billeting	3. Provide enlisted billeting space, as required, for Receiver personnel. Military unit integrity will be maintained as much as possible.	3. Comply with Supplier's policies and procedures.
4. Temporary Lodging (TOY)	4. Provide temporary lodging on a cash basis for TOY visitors to Receiver activities. If temporary base lodging is unavailable, authorize the use of contract quarters using FCDNA funds.	4. Provide reasonable advance notice of unusual requirements for lodging of TOY visitors. Provide fund cite for contract quarters. Comply with Supplier policies and procedures.
5. Temporary Lodging (PCS-in, PCS-out)	5. Provide guest quarters on a cash basis for visitors to FCDNA personnel on the same basis as authorized for 1606 ABW personnel.	5. Comply with Supplier's policies and procedures.
(AK) LAUNDRY/ DRY CLEANING (REIMBURSABLE)	Provide organizational laundry and dry cleaning services as authorized by Receiver.	Reimburse for authorized Receiver organizational laundry and dry cleaning services.

CATEGORYSUPPLIER WILLRECEIVER WILL**(AL) HEALTH SERVICES
(NONREIMBURSABLE)**

- | | | |
|---|---|---|
| 1. Medical Advisor | 1. Provide a medical advisor who will coordinate medical support of FCDNA and advise the Commander, FCDNA, on medical matters, affecting the health of the Command. | 1. Comply with Supplier's policies and procedures. |
| 2. Medical Care | 2. Administer and perform a comprehensive medical care program, including medical exams, sick call, outpatient care, hospitalization and professional ancillary support for eligible personnel. | 2. Comply with supplier's policies and procedures. |
| 3. Dental Care | 3. Administer and perform those functions incident to the preservation of dental health through a program of prevention, treatment and control of dento-oral diseases, injuries and deficiencies for eligible personnel. | 3. Comply with Supplier's policies and procedures. |
| 4. Administrative Medical Support | 4. Provide representation on boards, panels, councils, and committees for required medical service participation; medical records screening for security clearance requests; medical evaluation and maintenance of health records of personnel assigned to nuclear weapons or nuclear reactor positions in accordance with AFR 40-14. | 4. Comply with Supplier's policies and procedures. |
| 5. Personnel Reliability Program (PRP)/ Sensitive Compartmented Information (SCI) | 5. Provide all necessary support to ensure the proper accomplishment of medical aspects of the PRP/SCI. This will include, but is not limited to medical review, medical and dental record labeling and proper notification to the Field Command Personnel & Administration Directorate concerning the initial and changing status of any personnel in the program. | 5. Provide updated lists of personnel on PRP/SCI and advise of status changes of personnel. |
| 6. Radiological Health Support | 6. Provide Receiver local radiological support to include health physics consultation, periodic and special radiological surveys, personnel radiation dosimetry service and technical information concerning nuclear accidents or emergencies. | 6. Advise Supplier of requirements and unique situations/accidents. Reimburse for supplies, equipment, and TDY costs in support of Receiver projects. |

CATEGORYSUPPLIER WILLRECEIVER WILL

7. Outpatient
Travel

7. Provide funding for out-
patient travel for Army and
Navy personnel assigned to
Tenant, citing local O&M
funds (ref HQ USAF/SGHG msg,
7 May 87).

7. Comply with Supplier's
policies and procedures.

(AM) FOOD SERVICE
(NONREIMBURSABLE)

1. Messing Services
Not on Separate
Rations

1. Provide meals on a
nonreimbursable basis for
Receiver Army and Navy
personnel not on separate
rations.

1. Comply with Supplier's
policies and procedures.

2. Messing Services
on Separate Rations

2. Provide meals for
Receiver personnel not
authorized to subsist at
Government expense on the
same basis as the Supplier
personnel.

2. Ensure Receiver personnel
comply with Supplier's poli-
cies and procedures and
reimburse on a cash basis for
meals received.

3. Box Lunches

3. Provide box lunches
as required to support
Receiver exercises.

3. Provide reasonable notice
of requirements for box
lunches, collect cash
charges, and pay upon receipt
of needs.

(AN) STORAGE AND
WAREHOUSING
(NONREIMBURSABLE)

1. Assigned
Storage Facilities

1. Coordinate assignment
and modification of storage
facilities.

1. Fund for modification or
reactivation of assigned
facilities.

2. Temporary
Storage Facilities

2. Provide occasional
temporary storage of
materials as requested
and as available.

2. Provide advance notice of
temporary storage require-
ments.

(AO) TRANSPORTATION
(REIMBURSABLE)

1. Commercial
Transportation
Support

1. Preparation and
processing of transporta-
tion requests relative to
PCS and TDY travel.

1. Assume financial respon-
sibilities for ticketing of
personnel on official orders.

2. Shipment of
Household Goods

2. Administrative and
operating services inci-
dental to shipment of
household goods.

2. Ensure individuals notify
base housing and furnish PCS
orders.

3. Packing/Crating
Service

3. Provide packing and
crating services as
required.

3. Fund for packing and
crating services.

4. Transportation
of Tours

4. Provide transportation
of special tours and groups
in conjunction with offi-
cial FCDNA functions.

4. Provide Base Transporta-
tion a written request, as far
in advance as possible, for the
service to include date, time,
location and number of person-
nel to be transported.

CATEGORYSUPPLIER WILLRECEIVER WILL

5. Transportation
in Support of
Projects

5. Provide transportation in support of DNA sponsored projects when requested and ensure equipment is moved within required MILSTAMP timeframes commensurate with the assigned priorities.

5. Ensure Base Transportation receives property, support instructions, and appropriate fund cites.

(AP) UTILITIES
(REIMBURSABLE)

1. Provide normal utilities service as required to include electrical, gas, steam, and water.

1. Reimburse Supplier based on activity rate, meter readings or engineering estimate as applicable.

2. Provide afterhours maintenance and repair to utility systems when mission requirements do not allow outages during the normal duty day.

2. Reimburse all overtime costs associated with after-duty maintenance and repair of utilities and backup systems not accomplished on an emergency basis.

3. Provide stand-by power support on real property installed generators for computer facility (Building 20676).

3. Provide CE Power Production Shop a schedule to include time and date for generator run-up requirements MLT first duty day of each month.

(4) Provide constant temperature and humidity control for computer facility (Building 20676) to assure maintenance of acceptable environmental conditions. (Optimum temperature of 75 degrees F with range of 65 degrees F to 80 degrees F. Optimum relative humidity of 50% \pm 5%.)

5. Provide constant temperature and humidity control for film archive (Room 222, Building 20363) to assure acceptable environment for original nuclear test films. (Temperature range of 50 degrees F to 60 degrees F and optimum relative humidity of 20% \pm 5%.)

6. Provide constant temperature control (Range 65 degrees F to 80 degrees F) to assure nondamage to ceramic components of ARES pulser in Building 20754.

Provide normal contract mortuary services for Receiver military personnel; mortuary services for U.S. Air Force personnel assigned or attached to FCDNA.

Notify Supplier of requirements. Comply with Supplier policies and procedures.

(AQ) MORTUARY
SERVICES
(NONREIMBURSABLE)

CATEGORYSUPPLIER WILLRECEIVER WILL

(AS) CALIBRATION
OF PRECISION
MEASURING EQUIPMENT
(REIMBURSABLE)

Provide calibration of
precision equipment.

Reimburse Supplier based on
civilian man-hours expended
plus supplies and/or equip-
ment used. Comply with
directives pertaining to
servicing of PMEL equipment.

(AV) EDUCATION
SERVICES
(NONREIMBURSABLE)

1. Normal Education
Support

1. Provide normal train-
ing, education support
and common training aids.

1. Comply with Supplier's
policies and procedures.
Advise Supplier of require-
ments.

2. Unique Training

2. Provide administra-
tive support for training
unique to Receiver,
including TDY, travel.

2. Reimburse for TDY, tui-
tion, travel costs incident
to Receiver unique training
requirements.

(AW) REAL PROPERTY
MAINTENANCE
(REIMBURSABLE)

1. Provide Receiver
access to the Government
Operated Civil Engineer-
ing Supply Store (GOCESS).

1. Reimburse Supplier based
on actual cost of supplies.
Comply with Supplier policies
and procedures.

2. Provide pest, insect
and rodent control serv-
ices to FCDNA designated
facilities on a routine
and as needed basis.

2. Appoint a representative
to act as a single point for
submittal of work requests.

3. Provide architec-
tural and engineering
services for design and
construction of FCDNA
facility construction
projects.

3. Appoint building managers
for each assigned facility
and assume responsibilities
for submitting work requests
and conducting inspections
in accordance with applicable
Air Force, 1606 ABW regula-
tions, and FCDNA instruc-
tions. Reimburse for serv-
ices as provided.

4. Provide correction
of design deficiencies
for facilities designed
by 1606 ABW architec-
tural and engineering
services on an as
available basis.

4. Be responsible for pro-
gramming and financing
acquisition, construction,
conversion, alteration, modi-
fication, or rehabilitation
of facilities in accordance
with Department of Defense
Directive 7150.5.

5. Correction of design
deficiencies for facili-
ties designed by FCDNA
engineers.

5. Reimburse for material
and civilian man-hours
expended.

6. Correct safety,
including fire safety,
deficiencies of real
property to meet appli-
cable Air Force Safety
and Occupational Safety
and Health Act (OSHA)
standards, whichever is
most stringent.

CATEGORYSUPPLIER WILLRECEIVER WILL

(AW) REAL PROPERTY
MAINTENANCE
(REIMBURSABLE)
(cont'd)

-7. Provide facilities,
identified in Annex C,
for exclusive use by
FCDNA.

8. Provide maintenance
and repair of real prop-
erty facilities including:

a. Class M--real
property maintenance on a
nonreimbursable basis.

b. Class R--real
property repairs on a
nonreimbursable basis.

c. Class R(E)--real
property emergency repairs
on a nonreimbursable basis.

d. Class MC--real
property alterations and
minor construction
required solely for FCDNA.

Reimburse for cost of sup-
plies and civilian man-hour
expended.

9. Alarm Devices

9. Provide installation
and maintenance of alarm
devices and classified
security containers.

9. Reimburse for equipment
supplies and civilian
man-hours expended.

(AX) DISPOSAL
SERVICE
(REIMBURSABLE)

Make available on a
scheduled basis, a secure
facility for destruction
of classified material.

Comply with Supplier's
supplies and procedures.

Provide refuse collection
and disposal services.

Reimburse Supplier for
identifiable costs based on
pro rata share of Supplier
contractual costs.

(AY) ADMINISTRATIVE
SERVICES
(NONREIMBURSABLE)

1. Boards and
Committees

1. Conducts boards and
committees IAW applica-
ble directives.

1. Provide representation to
boards and committees which
affect FCDNA operations or
personnel.

2. Base Details

2. Task units for
detail members in sup-
port of base-wide service
function.

2. Provide personnel for
base details, in support of
base-wide service functions
on a noninterference with
assigned mission basis.

3. Publication

3. Provide mutual support
and assistance in acquisi-
tion and distribution of
official Government publi-
cations and blank forms;
other publications and sub-
scriptions to periodicals;
and 1606 ABW bulletin support.

3. Provide mutual support
and assistance in acquisition
and distribution of official
Government publications and
blank forms.

4. Locator
Service

4. Provide postal locator
service.

4. Comply with Supplier's
policies and procedures.

<u>CATEGORY</u>	<u>SUPPLIER WILL</u>	<u>RECEIVER WILL</u>
5. Pick-Up/Delivery	5. Provide pick-up/delivery of official intrabase communications.	5. Comply with Supplier's policies and procedures.
(AZ) PUBLIC AFFAIRS (NONREIMBURSABLE)		
1. Base Newspaper	1. Provide base newspaper service to include publication of articles submitted by Receiver.	1. Comply with Supplier's policies and procedures when submitting articles for publication in the base newspaper.
2. FCDNA Inquiries	2. Refer all inquiries concerning FCDNA to Receiver.	2. Respond to all inquiries involving Receiver through appropriate Command channels.
3. Public Affairs	3. Provide mutual support and assistance on public affairs programs, i.e., community relations and public information.	3. Provide mutual support and assistance on public affairs program, i.e., community relations and public information.
4. General Exchange of Information	4. Provide mutual exchange of information that may have a bearing or effect on each other's mission, personnel, critical material or facilities.	4. Provide mutual exchange of information that may have a bearing or effect on each other's mission, personnel, critical material or facilities.
(BA) CHAPLAIN AND RELIGIOUS SERVICES (NONREIMBURSABLE)		
	Provide normal chaplain services and religious activities.	No requirement.
(BB) SAFETY (NONREIMBURSABLE)		
	Provide normal industrial, conventional explosive and ground safety support to include special safety inspections and/or training and assistance in accident investigation/reporting when requested by Receiver and agreed to by both parties.	Retain safety functions relative to Receiver mission.
(BC) COMMUNICATIONS SERVICES (REIMBURSABLE)		
1. Common Use Communications	1. Provide common user telephone service to include class A and B telephone installation. Be advised of radio-frequency requirements.	1. Advise Supplier of requirements. Reimburse Supplier for identifiable costs including toll/watts calls, and for any special feature supplies and equipment used. Coordinate any radio frequencies to be used and provide a listing of all frequencies (to include bandwidth, emission characteristics and power) utilized to the installation frequency manager.
2. Message and Electrical Communications Service	2. Provide message distribution and electrical communications services (both incoming and outgoing).	2. Provide outgoing message traffic in a format acceptable to the communications personnel responsible for transmittal. Comply with Supplier policies and procedures.

<u>CATEGORY</u>	<u>SUPPLIER WILL</u>	<u>RECEIVER WILL</u>
3. Communication Service	3. Provide communication service (peculiar).	3. Ensure base communication receives written request for services; complying with all host base requirements.
4. Locator Service	4. Provide base locator service.	4. Comply with Supplier's policies and procedures.
(80) COMMUNITY SERVICES (NONREIMBURSABLE)		
1. Normal Services	1. Provide community services and facilities on same basis as for Supplier.	1. Utilize services and and reimburse as required on a case by case basis.
2. MWR/NAF SUPPORT (NONREIMBURSABLE)	2. Provide Morale, Welfare, Recreation (MWR) and Nonappropriated Fund Support to FCDNA personnel and activities to include, but not limited to: <ul style="list-style-type: none"> a. HQ MAC, directly through the 1606th MWR Division Chief, will provide the Commander, FCDNA, nonappropriated funds for authorized activities as outlined in Chapter 8, AFR 176-1. Requests for such funds will indicate a specific purpose. b. FCDNA military personnel, their dependents, and civilian employees (where permitted by USAF regulation) will be permitted use and access to morale, welfare and recreation facilities, programs, and equipment on the same basis as for Supplier. c. Receiver military personnel, their dependents, and civilian employees (where permitted by USAF regulation) will be eligible for membership associates and private associations on the same basis as 1606 ABW personnel. 	2. Utilize services and reimburse as required.
(BF) MILITARY PERSONNEL SERVICES (NONREIMBURSABLE)	Provide normal military personnel administration support for USAF personnel assigned to FCDNA; retirement/personal affairs counseling to all military personnel assigned to FCDNA in the same manner as provided to USAF personnel;	Utilize services and abide by 1606 ABW personnel processing procedures.

<u>CATEGORY</u>	<u>SUPPLIER WILL</u>	<u>RECEIVER WILL</u>
(BF) MILITARY PERSONNEL SERVICES (NONREIMBURSABLE) (cont'd)	passport processing for all personnel assigned to FCDNA and their dependents.	
(BG) SOCIAL ACTIONS (NONREIMBURSABLE)	Provide services for Receiver on same basis as for Supplier.	Comply with Supplier directives, policies and procedures.
(BS) SUBSISTENCE (REIMBURSABLE)	Provide emergency rations and subsistence supplies to support FCDNA operations, plans, and exercises.	Make every attempt to provide sufficient advance notification of requirements. Reimburse for actual cost of supplies.
(BU) EXPENDABLE AND GENERAL SUPPLIES (REIMBURSABLE)	Provide general and expendable supplies and equipment, as available.	Reimburse Supplier for cost of supplies and equipment.
(BV) PRINTING AND REPRODUCTION (REIMBURSABLE)		
1. Duplicating Service	1. Provide minor services (on a nonreimbursable basis) as defined in AFR 6-1 on a mutual support to supplement existing capabilities.	1. Provide minor services (on a nonreimbursable basis) on a mutual support basis to supplement existing capabilities.
2. Copying Service	2. Provide services as defined in AFR 6-1.	2. Comply with Supplier's policies and procedures when service is requested and reimburse for supplies and civilian man-hours expended.
3. Printing Service	3. Request services as available in FCDNA. Reimburse for actual cost of support and civilian man-hours expended.	3. Provide printing, binding and related services as requested.
(BW) DISASTER PREPAREDNESS (NONREIMBURSABLE)		
	1. Provide training for FCDNA key shelter team members in accordance with AFR 355-1.	1. Participate in base disaster preparedness.
	2. Provide additional support as required to implement the FCDNA Disaster Preparedness Program.	2. Make personnel available for training on a mutually agreeable basis. Appoint a Unit Disaster Preparedness Officer. Supervise the unit program in accordance with DODD 5100.46, as implemented by AFM 355-1 and the 1606 ABW Disaster Preparedness Plan.
(MF) COMMUNICATIONS EQUIPMENT (REIMBURSABLE)		
1. FCDNA Equipment	1. Provide field and organizational maintenance of FCDNA communications equipment.	1. Reimburse Supplier for all field maintenance performed.

CATEGORYSUPPLIER WILLRECEIVER WILL

2. Vehicle Radio Systems

2. Provide on nonreimbursable basis, maintenance and repair of communication lines associated with radionet for vehicle radio system.

2. Equipment and vehicles will be provided to Supplier for proper maintenance and repairs through scheduled appointments.

(MG) VEHICLE MAINTENANCE (REIMBURSABLE)

Provide all necessary labor, materials, services, etc., for maintenance/repair of FCDNA-owned vehicles including recycle of storage batteries used in electric forklifts.

Fund for materials and labor performed on Receiver owned vehicles. Deliver Receiver-owned vehicles to base maintenance/servicing on scheduled workorder basis.

FCDNA-owned vehicles are as follows: 11 sedans, 2 station wagons, 3 panel trucks--1/2 ton, 16 pickups--1/2 ton, 2--1/2 ton trucks, 6 forklifts, 1 van wagon, 1 tractor.

(SA) AIRCRAFT AND FLYING ACTIVITIES (NONREIMBURSABLE)

Provide Base Operations support for combat training, required instrument checks and allied training (AFR 60-1) for rated personnel of USAF and USN assigned to FCDNA. (Aircraft will be furnished by other Receiver activities as available and as required for such training.)

Utilize the service and comply with scheduling requirements.

(SC) AMMUNITION (NONREIMBURSABLE)

1. Common Ammunition

1. Provide common training ammunition for normal weapons qualification programs as required as part of the 1606 ABW firing range function.

1. Utilize and comply with 1606 ABW regulations.

2. Base Stock

2. Provide base or stock funded mission peculiar ammunition issued to FCDNA.

2. Request and reimburse as required.

(SE) CLOTHING AND TEXTILES (NONREIMBURSABLE)

AAFES will provide clothing sales support for FCDNA military personnel including US Army and US Navy clothing and insignia on a proportionate share as that provided 1606 ABW USAF military personnel.

Utilize this service. Reimburse on a case-by-case basis.

(SG) VEHICLES (NONREIMBURSABLE)

1. Assignment of U-Drive Vehicles

1. Occasional assignment of vehicles from the base motor pool on a U-Drive basis to satisfy short-

1. Provide a written request to base transportation on the type of vehicle required, date, and time the vehicle

<u>CATEGORY</u>	<u>SUPPLIER WILL</u>	<u>RECEIVER WILL</u>
1. Assignment of U-Drive Vehicles (cont'd)	term requirements not to exceed 30 days for which FCDNA-owned vehicles are not available.	will be needed. Comply with applicable AF directives while using assigned 1606 ABW vehicles.
2. Statistical Data	2. Statistical data on utilization, operation, maintenance of FCDNA-owned vehicles.	2. Responsible for authorization, replacement, disposition, and reporting of FCDNA-owned vehicular equipment assets.
3. Vehicle Support to Satisfy Occasional or Unusual FCDNA Requirements	3. Additional Government vehicle support from available assets to satisfy occasional or unusual FCDNA requirements. Priority transportation assets will be forwarded to support FCDNA emergency contingency missions and exercises as required by pre-coordinated OPLANS and OP ORDERS.	3. Provide reasonable advance notice of unusual requirements, such as transportation for VIP group, exercises, heavy-duty cargo requirements, etc.
(SD) MEDICAL SUPPLIES AND EQUIPMENT (REIMBURSABLE)	Provide medical supplies and equipment; ambulance support within capability, including drivers, attendants, and emergency equipment for emergencies, field exercises and tests. Provide medical maintenance support within capability. Medical personnel, equipment and supply support for Contingency Emergency and Exercise Operations is specified in pre-coordinated FC OPLANS.	Reimburse for supplies and equipment, and TDY costs in support of FCDNA projects.
(ST) POL PRODUCTS (REIMBURSABLE)		
Common POL Products	Provide all common petroleum, oils, lubricants (POL) products to FCDNA-owned or assigned vehicles and <u>equipment</u> .	Reimburse Supplier for all POL products issued to FCDNA.
(SY) AUDIOVISUAL SERVICES (REIMBURSABLE)	Provide common audiovisual training aids, to include common film, library support and audiovisual maintenance and repair.	Reimburse Supplier for maintenance and repair based on actual/estimated hours expended plus supplies and/or equipment used.
	Provide still photographic processing of 25 to 30 rolls per month and other infrequent miscellaneous photographic support as needed, on a noninterference basis.	Reimburse Supplier for civilian man-hours expended plus supplies used.

ANNEX B

PROVISION OF CIVILIAN PERSONNEL MANAGEMENT OFFICE

1. The Commander, Field Command, Defense Nuclear Agency (FCDNA), and the Commander, 1606th Air Base Wing (1606 ABW), Kirtland Air Force Base (KAFB), agree that civilian personnel services as delineated herein will be provided on a common service basis by the 1606 ABW Civilian Personnel Office. Services will be provided for authorized activities of FCDNA. Programmed strength of the serviced activities, as of 6 January 1987, was 320 civilian positions.
2. Manpower authorization documents will be provided the 1606 ABW Civilian Personnel Officer by FCDNA.
3. Personnel authority has been delegated by the Director, DNA, to the Commander, FCDNA, who will designate the 1606 ABW Civilian Personnel Officer to act for him in the administration of the civilian personnel program. This designation does not reduce the authority and responsibility of the Commander, FCDNA, for the effective management and direction of employees under his jurisdiction.
4. The 1606 ABW Civilian Personnel Officer (CPO) will serve as Civilian Personnel Officer to the Commander, FCDNA, and will be regarded as a member of his staff for civilian personnel management purposes, performing the functions described in AFR 40-104 for the Commander, FCDNA. CPO will provide a complete civilian personnel program for FCDNA as described in Air Force Regulations 40-102, 40-103, 40-104, and 40-105.
5. As required by Section IV, Department of Defense Directive 1400.16, 30 October 1970, implemented by DNA Instruction 1400.16B, "Interdepartmental Civilian Personnel Administration Support," and AFR 40-105, administration of the civilian personnel program for FCDNA by the 1606 ABW Civilian Personnel office will be in accordance with the policies, regulations and procedures of USAF except as follows:
 - a. Career Program. All aspects of the career program which require command action are the responsibility of the Director, DNA. The 1606 ABW Civilian Personnel Office will take action required locally by DNA Instruction 1430.1A, "DNA Civilian Career Development." The DNA command channel will be followed for action required at or above the local command level.
 - b. Promotion Program. The provisions of FPM Chapter 335 and AFR 40-335 will be applied to FCDNA and other DOD activities serviced by the 1606 ABW Civilian Personnel Office. When the area of consideration is extended beyond base level, HQ DNA will be included in the area of consideration. FCDNA employees will also be included in programs of DNA which provide consideration for promotion beyond the local level.
 - c. Incentive Awards. Local processing and approval of awards will be in accordance with DNA Instruction 1445.1, "Civilian Performance Awards Program;" DNA Instruction 5120.16, "Suggestions, Inventions and Scientific Achievements;" DNA Instruction 1432.4B, "Honorary Awards to Private Citizens and Organizations." Awards action required above the local level on suggestions and incentive awards to FCDNA employees and on suggestion awards to FCDNA military personnel will be forwarded through FCDNA command channels to the Director, DNA, in accordance with the above referenced instructions. The certificates, pins, decorations and other forms of service and honorary recognition, as well as the standards for their issuance, prescribed by the Defense Nuclear Agency will be utilized by the 1606 ABW Civilian Personnel Office in its administration of these types of services and honorary recognition for FCDNA. The Commander, Field Command, DNA will sign certificates required in connection with awards to employees of FCDNA in accordance with delegated authority.
 - d. Performance Ratings. FCDNA performance appraisals will be processed under DNA Instruction 1443.1, "General Performance Appraisal System," or DNA Instruction 1415.1H, "Performance Management and Recognition System," as applicable.

e. Position Classification.

(1) Actions to be taken by Commanders in accordance with DNA Instruction 1451.1A, "Civilian Position Classification and Appeals," will be taken by the Commander, FCDNA. Job evaluation decisions requiring action at higher headquarters will be forwarded in accordance with the above instructions with recommendations of the 1606 ABW Civilian Personnel Officer. The administration of the civilian personnel classification program for FCDNA will be in accordance with Headquarters DNA policy and procedures defined in DNA Instruction 1451.A.

(2) Approval for establishment of, changes to, and abolishment of positions in grades GS/GM-13, 14, and 15, and supergrade or Senior Executive Service positions, will be obtained from Director, DNA, in accordance with DNA Instruction 1100.5C, "Manpower and Organization Policies and Procedures for the Defense Nuclear Agency."

f. Appeal and Grievance Procedures. Appeals and grievances by employees of FCDNA, except those who may have grievance rights under a negotiated grievance procedure, will be processed in accordance with DNA Instruction 1428.1D, "Agency Grievance System." Adverse action appeals and grievances will be processed by the 1606 ABW Civilian Personnel Office. Cases requiring action by higher headquarters will be forwarded through FCDNA Command channels to the Director, DNA, ATTN: MPCV.

g. Appointment of Experts and Consultants. Appointment of experts and consultants will be processed through FCDNA Command channels to Director, DNA, ATTN: MPCV, in accordance with DNA Instruction 1442.1A, "Appointment and Use of Consultants and Experts."

h. Training and Development. Review and approval above the local level required by AFR's 40-210 will be obtained from the Director, DNA. The procedures described in DNA Instruction 1430.3C, "Civilian Employee Training," will be used in processing requests for approval.

i. Equal Employment Opportunity.

(1) FCDNA will designate an EEO Officer from within Field Command. This individual will be the focal point on all FCDNA affirmative action activities. His/her activities/responsibilities will include:

(a) FCDNA organization plan development.

(b) Monitoring FCDNA progress toward EEO Plan of Action goal achievement.

(c) Collecting and preparing required reports.

(d) Ensuring that the special emphasis programs, such as the Federal Women's Program and Hispanic Employment Program, are incorporated into the overall FCDNA Equal Employment Opportunity Program.

(2) FCDNA will comply with HQ DNA instructions and will be guided by the 1606 ABW and USAF directives on this subject; the 1606 ABW Equal Opportunity Office will provide technical assistance as necessary to FCDNA.

(3) The counseling process prescribed in AFR 40-713 will be utilized in an attempt at informal resolution of any alleged discriminatory practices or situations. Formal complaints will be processed under DNA Instruction 1400.8C, "Equal Employment Opportunity Program."

j. Relations with Employee Organizations. The 1606 ABW Civilian Personnel Officer will designate a member of his staff to provide expert counsel and advice to the Commander, FCDNA, in the area of labor-management relations in the federal service. Policies and procedures prescribed in DNA Instruction 1426.1A, "Labor Management Relations in the Defense Nuclear Agency," will govern labor relations activity at FCDNA.

k. Reduction in Force. For reduction in force purposes, FCDNA employees will be in a separate competitive area. DNA Instruction 1410.2A, "Reduction in Force," will govern actions resulting from a reduction in force. Maximum out-placement assistance to FCDNA employees affected by reduction in force will be provided by the 1606 ABW and Field Command. DNA and shall include:

(1) Placement of FCDNA employees in available vacancies in the commuting area for which the affected employees are qualified.

(2) Extension of priority placement rights to FCDNA employees as outlined in DNA Instruction 1400.20, 20 August 1981, "DNA Program for Stability of Civilian Employment."

l. Representation on Boards and Committees. The Commander, FCDNA, will designate representatives from his command as needed to serve on the various boards and committees involved in the administration of civilian personnel activities.

m. Publication of Policies and Procedures. The Director, DNA, will furnish the 1606 ABW Civilian Personnel Office with DNA instructions needed to implement DNA program requirements. The 1606 ABW Civilian Personnel Office will provide the Director, DNA, with local policy issuances for a complete Civilian Personnel Program. He shall also provide the Commander, FCDNA, with information and guidance as well as Air Force instructions and local policy issuances for a complete civilian personnel program. Comments on proposed local issuances will be obtained from the Commander, FCDNA, as well as from recognized employee organizations prior to publication.

n. Reports. Reports on matters covered by this agreement will be prepared by the 1606 ABW Civilian Personnel Office, in accordance with instructions from Commander, Field Command (FC) and forwarded through FC.

o. Dissemination of Agreement. The 1606 ABW Civilian Personnel Officer is responsible for continuing orientation of CPD employees, FCDNA employees, FCDNA supervisors, union officials, and EEO counselors on the requirements and procedures established by this Annex.

ANNEX C

REAL PROPERTY FACILITIES DESIGNATEDFOREXCLUSIVE USE BY FCDNA

<u>BUILDING NUMBER</u>	<u>BUILDING NUMBER</u>
20362 ✓	20683
20363 ✓	20694
20364 ✓	20696
20389 (second floor and storage area-- first floor)	20749
20602 (basement only)	20751
20668 ✓	20752
20676	20754
20677 ✓	20757
20682	20759 ✓
	37077
	37079

IDENTIFICATION OF REIMBURSABLE SUPPORT

1. IC (Organization) Support Organization: 1606 ABW/LGX		2. FUND RECEIVING ACTIVITY: A. FUND COMPONENT: X	
3. IC (Organization) Subcontract address number and phone number: 1606 ABW/LGX, 4-2191		B. ACCT. NO. Field Command, Defense Nuclear Agency	
4. DATE PREPARED 5 Dec 86	5A. TYPED OR PRINTED NAME AND GRADE Linda L. Nelsel, GS-11	5B. SIGNATURE <i>Linda L. Nelsel</i>	

II (Budget): Complete and return with the Agreement to ISC:

6. REIMBURSABLE SUPPORT (Mark columns B through F for each item in column A. Continue on reverse side, if appropriate.)		MILITARY LABOR		CIVILIAN LABOR		CIVILIAN OVERTIME		SUPPLIES		OTHER
A. TYPE SERVICE		B.		C.		D.		E.		F.
CODE	DESCRIPTION	YES	NO	YES	NO	YES	NO	YES	NO	YES (Specify)
AA	COMPUTER & DATA PROCESSING		X	X		X		X		
AB	FINANCE & ACCOUNTING		X	X		X		X		
AC	CIVILIAN PERSONNEL SERVICES		X	X		X		X		
AF	CUSTODIAL SERVICES		X	X		X		X		
AN	FIRE PROTECTION		X	X		X		X		
AI	POLICE SERVICES		X	X		X		X		
AK	LAUNDRY/DRY CLEANING		X	X		X		X		
AO	TRANSPORTATION		X	X		X		X		
AP	UTILITIES		X	X		X		X		
AS	CALIBRATION		X	X		X		X		
AW	REAL PROPERTY MAINTENANCE		X	X		X		X		
AX	DISPOSAL SERVICE		X	X		X		X		
BC	COMMUNICATIONS SERVICES		X	X		X		X		
BS	SUBSISTENCE		X	X		X		X		
BU	EXPENDABLE & GENERAL SUPPLIES		X	X		X		X		

7. REMARKS

9. DATE PREPARED 10 Dec 86	9A. TYPED OR PRINTED NAME AND GRADE OF BUDGET OFFICER B. Kopecky, Budget Analyst	9B. SIGNATURE <i>B. Kopecky</i>
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Phillips Laboratory (AFSC) ATTN: IN Kirtland AFB, NM 87117-6008		FB28XX		
GEOGRAPHICAL AREA OR COUNTRY CODE: 35		3. PRESENT AGREEMENT NUMBER	4. TERMINATION DATE (Month and Year)	
5. RECEIVER (Name, Office Symbol & complete address) Field Command, Defense Nuclear Agency ATTN: FCS-ISA Kirtland AFB, NM 87115-5000		3a. SUPERSEDED AGREEMENT NUMBER FB28XX-86304-193	0398	
GEOGRAPHICAL AREA OR COUNTRY CODE: 35		5a. DODAAC/FEOSTRIP NUMBER		
		5b. MAJOR COMMAND CODE HD2001	5c. SUBORDINATE COMMAND CODE HD1102	
6. SUPPORT AGREEMENT RESOURCE SUMMARY				
SUPPLIER				
7. CATEGORY CODES	8. MAN YEARS		9. GROSS ADDITIONAL COSTS	
	MILITARY	CIVILIAN	TOTAL	NON-REIMBURSEABLE
AZ				
TOTAL				
8a. RECEIVER DATA (When applicable, provide similar data required in blocks 6a, 6 and 8)				
7. SAVINGS ACCRUED/COSTS INCURRED/MAN YEARS SAVED/EXPENDED TO FEDERAL GOVERNMENT				
7a. SAVINGS		7b. COSTS		7c. MAN YEARS SAVED
FY:		FY:		FY:
8. FUNDING AND REIMBURSEMENT ARRANGEMENT (Include all details concerning billing/reimbursement procedure, funding limitations, and the appropriate "billing/submit thru" addresses. Also list those references which specifically apply to the type of organization being supported.)				

a. The Receiving Activity will provide the Supplying Activity projections of support required to accomplish its mission. Significant changes in the Receiving Activity function, mission or support requirements will be submitted by the Receiving Activity in a manner that will permit timely modification of resource requirements.

b. It is the responsibility of each agency providing support under this agreement to bring any required or requested change in support to the attention of FCDNA/FCS & DL/SSO prior to providing/reducing unilaterally each additional/reduced support.

c. Activities providing reimbursable support in this agreement will submit a monthly statement of costs to N/A for preparation of billing document, SF 1080.

d. Manpower required in support of this agreement which is subject to return to the leading activity upon termination of the agreement: none (Enter number or if no manpower is required, enter "None").

e. All rates expressing the unit cost of services provided in this agreement are based on current rates which may be subject to change for uncontrollable reasons, such as Congressional legislation, DOD directives, commercial utility rate increases, etc. The receiver will be notified immediately of such rate changes.

f. This agreement will be reviewed bimonthly at least 120 days prior to the anniversary date. It may be revised at any time upon the mutual consent in writing of the parties concerned.

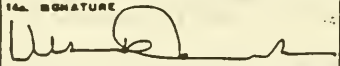
g. This agreement may be cancelled at any time by mutual consent of the parties concerned. This agreement may also be cancelled by either party upon giving at least 180 days written notice to the other party.

h. In case of mobilization or other emergency, this agreement will remain in force within supplier's capabilities, subject to normal cancellation provisions and will be subject to review at that time. This agreement will not be terminated if such action impairs the combat mission of the receiving activity as determined by higher headquarters.

10. REMARKS

Attachment: Memorandum of Agreement between Field Command, Defense Nuclear Agency, and Special Security Office, Phillips Laboratory.

FCDNA/FCSM - *Luann Banks*

11. COMPTROLLER CONCURRENCE (Supplier Signature & Date)		12. COMPTROLLER CONCURRENCE (Receiver Signature & Date)	
13. TYPED NAME AND ORGANIZATION OF SUPPLIER APPROVING AUTHORITY	13a. SIGNATURE	13b. DATE	
14. TYPED NAME AND ORGANIZATION OF RECEIVER APPROVING AUTHORITY WILLIAM H. DASSLER, COL, USAF Director, Support Directorate	14a. SIGNATURE 	14b. DATE 10/25/52	

U.S. Government Printing Office: 1950-120-675/1-5554

6. This MOA will be reviewed not less than annually and may be revised at any time upon mutual agreement by PL/INS, PL Senior Intelligence Officer, and FCDNA. Copies of this MOA will be sent to SSO DNA and SSO AFMC(P) as the parent organization of PL/INS.

7. This MOA is in effect upon signature by PL/INS, PL Senior Intelligence Officer, and the FCDNA representative.

8. CONCURRENCE: Please indicate your concurrence by endorsement hereon and return the original copy to SSO Kirtland (PL/INS).

Adam P Avery

ADAM P. AVERY, Capt, USAF
Special Security Officer
Kirtland Air Force Base, NM

Date: 20 Feb 92

Dennis W Anderson

DENNIS W. ANDERSON, Lt Col, USAF
Director of Intelligence
Kirtland Air Force Base, NM

Date: 20 FEB 92

Stanley J McCloskey

STANLEY J. MCCLOSKEY, Capt, USAF
Chief, Security Division
Field Command, Defense Nuclear Agency
Kirtland Air Force Base, NM

Date: 18 Feb 92

MEMORANDUM OF AGREEMENT
BETWEEN
FIELD COMMAND, DEFENSE NUCLEAR AGENCY (FCDNA)
AND
SPECIAL SECURITY OFFICE (SSO)
PHILLIPS LABORATORY (PL)

1. PURPOSE: The purpose of this Memorandum of Agreement (MOA) will serve to establish policy and procedure for exchanges of Sensitive Compartmented Information (SCI) clearance access, billet management, product dissemination, and overall responsibility for proper SCI security practices between DNA, FCDNA, and PL/SSO (SSO/Kirtland).
2. GENERAL: The offices of primary responsibility for all matters pertaining to the support required by the MOA are:
 - a. PL/INS (SSO Kirtland)
 - b. PL/IN (Intelligence Office)
 - c. FCDNA
 - d. DNA
3. SSO PL will:
 - a. Brief and debrief individuals for SCI access upon receipt of indoctrination authority from SSO DNA.
 - b. Assist FCDNA in maintaining a current SCI billet structure as well as receiving and dispatching documentation of the same.
 - c. Assist FCDNA representatives in determining SCI product requirements.
 - d. Receive, dispatch, and store SCI products.
 - e. Provide access to the SCI data base and data base accessing systems, and provide a secure working area.
 - f. Administer security education and training programs to SCI indoctrinated personnel.
 - g. Certify/verify SCI access and forward the same for FCDNA personnel.

h. Investigate SCI security incidents, violations, or practices dangerous to security involving FCDNA personnel, material, and equipment, and forward interim and final reports to SSO DNA via DSCCS channels, with copy to FCDNA.

i. Accomplish all other actions required by USAFINTEL 201-1 and DoD 5200.2-R.

2. REFERENCES:

a. DoD Regulation 4000.19R, Mar 84, Defense Regional Interservice Support (DRIS) Regulation.

b. Medical Emergency Checklist for PHETS, June 1986.

c. MISTY PICTURE Safety Plan (To be supplied upon publication).

ATTACHMENTS:

- (1) Specific Support Provisions
- (2) Technical Weather Support for Large Scale High Explosive Listing at WSMR
- (3) Technical Weather Support for MISTY PICTURE Experiment 8510/8520

DISTRIBUTION:

- 1 - US Army Laboratory Command, Atmospheric Sciences Laboratory, ATTN: DP-P, White Sands Missile Range, NM 88002-5501
- 2 - Field Command, Defense Nuclear Agency, ATTN: TGL, Kirtland AFB, NM 87115-5000
- 1 - Defense Base Operations Analysis Office, DoD DRIS Program Administrator, 200 Stoval Street, Alexandria, VA 22332

j. Provide Back-channel/Privacy Message Support for Senior Commanders.

k. Provide copies of Indoctrination Memorandums (DD Form 1847), Nondisclosure Agreements (DD Form 1847-1) and Debriefing Memorandum (DD Form 1848) to FCDNA, upon completion.

4. FCDNA will:

a. Appoint a FCDNA liaison representative who will act as interface with PL/INS.

b. Ensure that SCI documents are not originated or stored outside of a certified SCI Facility (SCIF).

c. Ensure that all FCDNA personnel are debriefed or Transferred-In-Status, prior to a PCS move or retirement.

d. Notify PL/INS immediately of SCI security incidents, violations, or practices dangerous to security. Coordinate/assist PL/INS personnel in the conduct or resultant investigations as well as in the preparation of the investigation reports.

e. Notify PL/INS of any planned travel of individuals to those countries covered under DCID 1/14, USAFINTEL 201-1, Attachment 42.

f. Coordinate with PL/INS the proposed suspension of an individuals SCI access.

g. Notify PL/INS when the status of any SCI indoctrinated individual changes. Status changes include:

(1) Change in marital status (i.e. marriage or divorce)

(2) Serious incidents or crimes, to include unusual disciplinary actions.

(3) Alcoholism or use of illegal drugs, entry into an alcohol/drug treatment and rehabilitation program, or arrest for DWI/DUI.

(4) Financial instability, to include rejection for credit, bounced checks, or referral of an account to a collection agency.

(5) Observed abnormal or unusual behavior patterns.

(6) Any other matter that may impact on an individual's continuation in SCI indoctrinated status.

h. Ensure that FCDNA personnel adhere to PL/INS and PL/IN policies pertaining to SCI materials and entry into vault areas.

5. SSO DNA will: Provide PL/INS an annual message for permanent certification for each FCDNA member occupying an SCI billet.

CATEGORY OF SUPPORT

SUPPLIER SHALL

RECEIVER SHALL

(AI) ADMINISTRATIVE OFFICE SPACE
(Nonreimbursable)

1. Occupy assigned office space at PIETS per receiver's direction. This space will be occupied only during the time the supplier is directed to be on site at PIETS.

1. Assign adequate administrative office space to the receiver for the time required for the supplier to be on site at PIETS.

2. Be financially responsible for damages beyond normal wear and tear to assigned office space.

2. Conduct joint inspection of assigned office space.

(AX) REFUSE COLLECTION AND DISPOSAL
(Nonreimbursable)

Be responsible for collection and disposal of refuse into dumpster.

Provide dumpster for the depositing of refuse.

(AY) ADMINISTRATIVE SERVICES
(Nonreimbursable)

No requirement.

1. Provide a locator service for telephone calls.

2. Provide copying service on an as required basis.
NOTE: No mail/postal service shall be provided.

(BB) SAFETY
(Nonreimbursable)

1. Regulations and Standard Operating Procedures

1. Comply with all WSMR installation safety regulations and approved FCDNA Safety SOPs.

1. Provide all applicable safety SOPs.

2. Inspections

2. As necessary, jointly conduct safety inspections.

2. As necessary, jointly conduct safety inspections.

Question. What is the current water level in Upper Klamath Lake? Your 1995 Operations Plan outlines the goal of keeping Upper Klamath Lake "filled to above 4,142.4 feet through June." What is the probability of meeting that goal in light of the recent level of precipitation in the basin?

Answer. As of May 2, 1995, Upper Klamath lake is at Elevation 4,143.25. The present forecast indicates that the lake should not drop below 4,142.4 until mid July.

Question. Does the 1995 Operations Plan meet the downstream flow requirements for anadromous salmon stocks? How will those flow requirements impact the needs of the hydro facilities on the lower river?

Answer. The 1995 Operations Plan recognizes the needs of the downstream fishery. We do not expect adverse impacts to steelhead and salmon stocks as a result of the 1995 operations. Hydroelectric plants operated by PacificCorp will not be significantly affected by the operation plan. Normal operations for both river flow and hydropower are expected.

Umatilla Basin

As part of its new mission, the Bureau of Reclamation has identified the elimination of unauthorized water deliveries outside of project boundaries as a priority. One of the areas where the Bureau has been focusing its efforts has been the Umatilla Basin in Northeastern Oregon. The Bureau has been engaged in negotiations with the five irrigation districts in the Umatilla Basin to deliver water on a temporary basis until the long-term issue of how to deal with unauthorized out of boundary deliveries can be resolved.

Question. What is the status of these interim contracts with the five Umatilla Basin Irrigation Districts?

Answer. Hermiston Irrigation District and Reclamation have executed a 1995 interim one-year contract for water delivery to out-of-boundary lands. Stanfield Irrigation District is expected to execute its 1995 interim one-year contract soon. NEPA documentation was completed for these two contracts. The outcome for a Westland Irrigation District contract in 1995 is as yet unknown. The primary issue remaining to be resolved is the status of water rights for the out-of-boundary Teel Irrigation District lands and water rights for the instream flow mitigation water being provided under the 1995 interim contracts. West Extension Irrigation District has submitted its legal case on out-of-boundary issues to Reclamation for consideration. Reclamation will review their legal and factual points, determine the extent of any illegal deliveries in 1995, and bill the District for any illegal deliveries following the 1995 irrigation season.

Question. What is the status of the Environmental Impact Statement process now being pursued by the Bureau to evaluate the impacts of the out-of-boundary deliveries on a long-term basis? Does the Bureau follow a standard procedure for allocating the costs of this EIS? How does your agency plan on allocating the costs in the case of the Umatilla Basin EIS? Can the Bureau cover these costs with existing budget authority?

Answer. A provision in the 1995 interim contracts includes an agreement by the respective district to pay its share of return flow modeling

costs which will constitute the initial phase of the long-term NEPA analysis. This modeling will allow Reclamation to assess the level of environmental impact caused by the out-of-boundary deliveries and will allow Reclamation to determine what level of analysis, EA or EIS, is most appropriate for that level of impact.

Once modeling is completed the districts will be asked to fund the completion of the long-term NEPA analysis except in a few specific cases where extenuating surrounding circumstances exist. In some of those cases, Reclamation would pay the NEPA costs. Reclamation would require the districts to pay the long-term NEPA costs up front based on an agreed upon payment schedule. Reclamation should have sufficient budget authority to cover its costs.

Question. What is the status of the Umatilla Basin Project? Does the EIS relating to out-of-boundary deliveries pose any threats to the long-term viability of the Project?

Answer. The Umatilla Basin Project is progressing smoothly. We are currently working on specifications and construction contracts for the Phase II water exchange. This is the final phase of the Exchange Project. Although the interim contract negotiations have introduced some differences of opinion in completing exchanges under the Project, all parties have been able to work through those issues. We do not believe that the long-term NEPA for the out-of-boundary lands poses any significant threat to the viability of the Basin Project.

The Dalles Irrigation District Small Loan

I understand that the engineering estimates for The Dalles Irrigation District loan is about \$500,000 more than the original amount anticipated when the loan was developed.

Question. Do you anticipate any problems proceeding with the loan given the new estimate? Are there any other issues that could delay the loan?

Answer. Recently discovered geologic problems at the site have forced the District and its consultant to reevaluate construction of the proposed 17-acre-foot reregulating reservoir. It now appears that remedial work at the site to accommodate a 5-acre-foot steel tank being proposed as a replacement for the reservoir will increase the total project cost (the decrease in reserve storage should not affect the viability of the project). The District's consultant is currently preparing an estimate of the projected cost. Neither the District nor its consultant has approached Reclamation at this time seeking additional financing to offset this projected cost increase.

We anticipate that the project will proceed as planned with the substitution of the tank for the reservoir. We are unaware of any other issues that could delay the project further.

Question. Are sufficient funds available for transfer to the District so that the construction contract can be awarded as currently scheduled?

Answer. Sufficient funds are available for transfer to the District to initiate the work under this loan.

Question. Do you expect funding to be a problem with completing the loan as currently scheduled?

Answer. We are not currently aware of any funding problems that may prevent this loan from being completed as scheduled.

Question. If funding is a problem, what actions need to be taken to ensure that the loan proceeds without delay?

Answer. If project costs exceed the original estimate, the District could request an Escalation Loan.

Columbia River Basin Salmon

The Bureau is requesting \$15 million in FY 1996 for its Columbia and Snake River Salmon Recovery Project.

Question. Please provide a brief description of how the Bureau plans to utilize the funds in FY 1996.

Answer. Construction will continue on water conservation demonstration projects in the Lemhi and Yakima River basins. These facilities will allow improved water operations and enable water users to bypass flows during low flow conditions to provide additional flows for passage of salmon and steelhead.

Water acquisition contracts will continue to be executed with willing sellers. This is part of the storage buy-back measures to secure water for flow augmentation to aid migration of threatened and endangered salmon.

Environmental activities will continue which include a comprehensive Snake River review, tribal review, snail studies, and U.S. Fish and Wildlife Service and public involvement.

Construction of fish screen structures and ladders will continue as part of the fish protection measures to increase salmon migration survival.

Watershed demonstration projects in the John Day and Wallowa River basins in Oregon and the monitoring program with the United States Geological Survey will continue.

Question. What activities are being funded in the current fiscal year?

Answer. Fiscal year 1995 funds are being used to continue water acquisition, continue construction of water conservation demonstration projects which include ongoing work in the Lemhi River basin and award of a contract for construction of a reregulating reservoir in the Yakima River basin, environmental activities, and construction of fish passage and protective facilities.

Question. What difficulties and/or successes has the Bureau experienced in trying to acquire water from upstream water users in the basin? How much water has been acquired since 1991?

Answer. In Reclamation's experience, many water users have expressed a willingness to consider selling their entitlement to the Bureau of Reclamation.

Reclamation permanently reacquired some 6,500 acre-feet of storage space in American Falls Reservoirs in 1994, and other permanent acquisitions are pending. Additionally, Reclamation or the Bonneville Power Administration have rented water through Idaho rental pools each year except 1992.

The most severe constraint to acquiring water is proving to be time. Water acquisitions in the western United States occur, but prove to be complex and time consuming. The processes of setting value (appraisal), determining ownership (title), and negotiating acceptable agreements are complex. Reclamation is taking affirmative steps to address the problems by seeking to acquire appraisal and title insurance services from the private sector. The other important constraint is money. "Willingness to sell" may not result in an acquisition if agreement cannot be reached on price and other terms.

The amounts of water acquired through lease or purchase are as follows:

YEAR	TOTAL ACRE-FEET REQUIRED	ACRE FEET RENTED	ACRE FEET AVAILABLE FROM PROJECT <u>1/</u>	TOTAL ACRE FEET PROVIDED
1991	190,000	160,000	40,000	200,000
1992	427,000	0	90,000	<u>2/</u> 90,000
1993	427,000	100,000	324,000	424,000
1994	427,000	45,000	383,000	428,000
Total	1,471,000	305,000	837,000	1,142,000

1/ Non-contracted space and power-head space (space in reservoir permanently reserved to increase power-head).

2/ Drought year. Augmentation volume not provided.

In addition to the above data, 6,518 ac-ft of space purchased in December 1994 for approximately \$1 million will be available in 1995 and beyond.

Question. How is the Grand Coulee project being operated this spring to assist the downstream passage of juvenile salmon? How will the changes in Grand Coulee's operations affect power revenues (i.e., how much will it cost) over the course of the year?

Answer. In accordance with the National Marine Fisheries Service's (NMFS) March 2, 1995 Biological Opinion, Grand Coulee Dam is being operated with the goal of having the reservoir as full as permitted by flood control requirements at the start of the migration season (April 20) and reaching full by the first of July. Prior to this Opinion, the April 20th elevation was

SUBJECT: Technical Weather Support for Large Scale High Explosive Testing at WSMR

(c) Obtain satellite weather photographs from the MIT Tracking Stations at Stallion Range Center. Provide these photos to the SNLA meteorologist for his consideration and assist in their analysis.

(d) Assist the SNLA meteorologist in forecasting and analyzing the behavior of the Ground Zero (GZ) winds in order to protect wind sensitive experiments.

c. Meteorological Measurements.

(1) Radiosonde observations shall be made from Stallion Range Center to obtain upper air wind, temperature and humidity (WTH) data in 150 m increments up to 8 Km and 1 Km increments above. Two preshot soundings are required as is one shot time sounding and one postshot. The preshot soundings are to be spaced at no less than three hours apart. The actual launch times will be established based upon countdown considerations. Supply all data to the SNLA meteorologist for his analysis and assist him as required.

(2) Deploy, operate and maintain the mobile SAMS System to provide local weather observations. This system shall be in place and operating by W-5. The data shall be available at the Admin Park for use by the SNLA meteorologist. The Data Collection Posts (DCPs) shall be located at South Oscura Peak, Gap Site, Fran Site, Field Site and the PHETS Admin Park. Surveyed points at these locations will be provided by FCDNA. The ACU will be at the PHETS Admin Park in a FCDNA provided trailer. Provide all data to the SNLA meteorologist and assist in its analysis.

(3) Provide meteorological data from the GZ location to the two video monitors and one printer located in the Met trailer and control officer's trailer in Admin park.

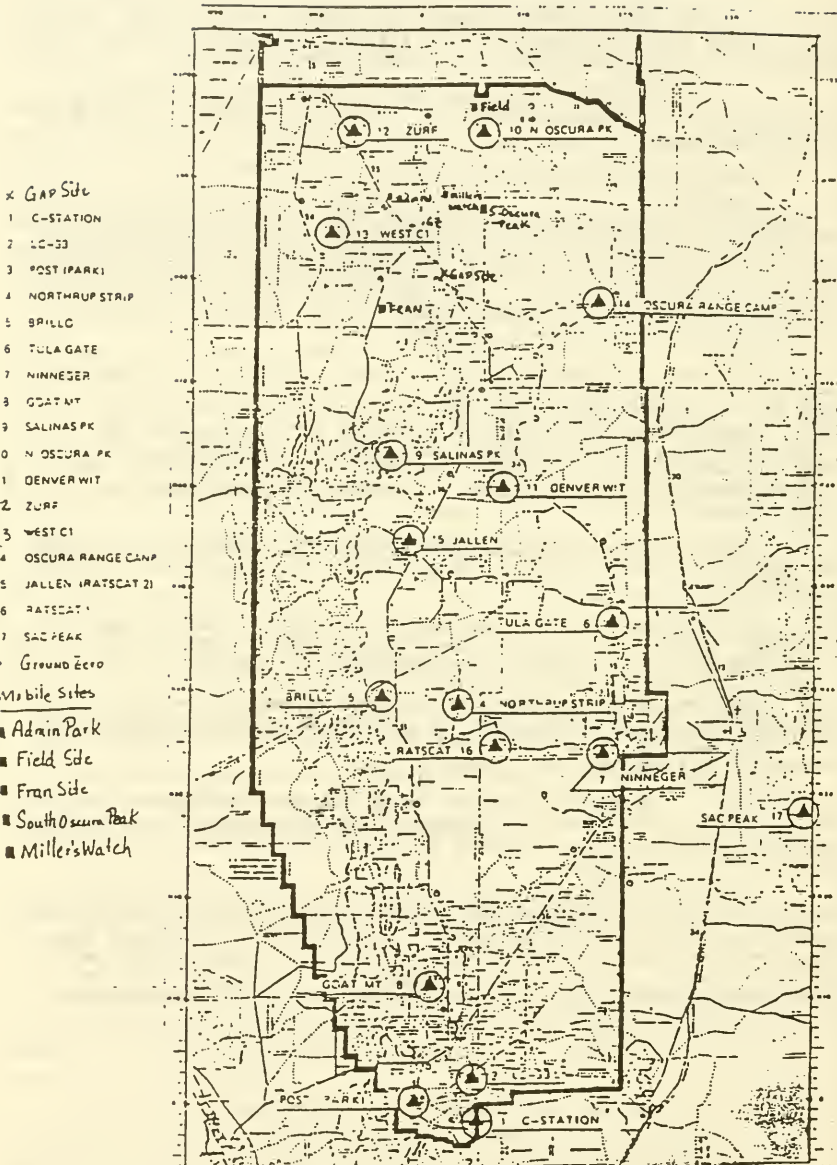
(4) Take measures to protect certain elements of the GZ Met Tower from the MISTY PICTURE blast by placing them in a concrete vault provided by FCDNA. These items include the data logger, receiver/transmitter and power source.

(5) Procure and have available sufficient equipment to reconstruct a GZ meteorological observation tower with the same capability as the original, since it is expected that the original tower will be destroyed in the blast. The location of this new tower will be supplied later.

(6) A tethered sonde will be operated by SNLA at the Admin Park. The WTH sensor package can be winched up and down at .5 m/sec to a height of 3 Km while providing continuous data. SNLA will continue to provide this support on all events after MISTY PICTURE.

(7) A rocketsonde observation will be launched soon after the MISTY PICTURE event, from the WSMR Small Missile Range (122 Km south to GZ), to document atmospheric winds and temperatures in the 30 Km to 65 Km altitude layer. These data are needed for interpretation of very long range propagations of acoustic as well as gravity waves and ionospheric disturbances. Daily rocketsonde flights, beginning on D-3 days, are needed in support of propagation tests.

SAMS Network at WSMR, N.M.



SUBJECT: Technical Weather Support for Large Scale High Explosive Testing at WSMR

d. Microbarograph (MB) Measurements.

(1) On-site MB stations will be operated at McDonald ranch, Admin Park, Observer Area, T&F Park and Stallion Range Center, to document airblast propagations beyond the close-in gauge lines.

(2) Off-site MB stations will be operated as for previous events in Alamogordo, Tularosa, Carrizozo, and Socorro to allow verification of predictions as well as objective evaluations for any damage claims that might arise.

(3) MB stations will record focused ozonosphere propagations near the 200 km radius circle downwind of summer high-altitude easterly winds. Located at Deming, Silver City, Reserve, Quemado, and Grants these stations will allow validation of any claims in case particularly strong propagations occur.

All MB data will be recorded on strip charts that may be digitized later. At some selected stations, there will be parallel recordings with newly acquired experimental recorders involving digitized magnetic tape systems. Frequency response of MB records is generally limited to about 50 Hz by the sensing head design and recording systems, but this has been accepted as adequate for large explosion waves with only a few hertz fundamental frequency.

The SNLA radio network will be used to communicate countdown information and results between the outlying MB stations with the blast prediction center.

ASL will be trained in the use and methodology of the MB recorders. However, they need not be present at all of the outlying stations. Information on the exact MB locations will be provided by SNLA.

e. Propagation Tests. Twice daily 100 pound and 2,500 pound Ammonium Nitrate/Fuel Oil detonations beginning at D-3 shall be fired and recorded by the MB stations. The arming and firing of these charges will remain with SNLA for any HE event. However, the correlation of the MB and rocketsonde data will transition to ASL after MISTY PICTURE.

4. During FY88 there is no planned medium to large scale HE event at the Permanent High Explosive Test Site (PHETS). However, there is a long term goal of being able to accurately forecast the winds at PHETS. This will require the collection and retention of data from the newly constructed GZ Met Tower which was mentioned above. This data will be used to refine the wind forecasting and propagation model developed by SNLA for the PHETS area.

5. During August - September 1987 FCDNA is to support an experiment on a structure located at PHETS. It is unknown what meteorological support is required to accomplish the test. The test will be conducted using substantial amounts of high explosives and fuel-air explosive. The sensitivity of the latter to winds will be ascertained and requirements documented when they become available.

SUBJECT: Interservice Support Agreement (ISA) No. W43P6S-87031-010

Headquarters, U.S. Army Laboratory Command, 2800 Powder Mill Road, Adelphi,
MD 20783-1145 13 APR 1987 10 Apr 87

TO: Commander, Atmospheric Sciences Laboratory, ATTN: SLCAS-DP-P, White Sands
Missile Range, NM 88002-5501

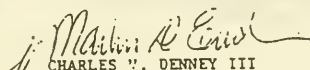
1. Subject agreement has been signed and is returned herewith (encl).
Copies have been retained for our files and provided to AMC ILA, Rock Island,
IL.

2. Point of contact for this action is Charlene Wellman, AV 290-3293.

3. LABCOM - Providing Soldiers the Decisive Edge.

FOR THE COMMANDER:

Encl


CHARLES W. DENNEY III
Deputy Chief of Staff
for Resources Management

SUBJECT: Technical Weather Support for MISTY PICTURE Experiment 8510/8520

Atmospheric Sciences Laboratory
 ATTN: AT-WS (Gordon Dunaway)
 US Army Laboratory Command
 White Sands Missile Range, NM 88002-5501

1. Background. MISTY PICTURE Experiment 8510/8520 is the Ballistic Reentry Vehicle (BRV) fly through experiment. The purpose of this experiment is to identify and quantify dust cloud induced erosion of several types of reentry nosetips.

These nosetips will be launched using ballistic rockets which are sensitive to virtually all meteorological factors. The nosetips will attain a significant altitude and, being ballistic, will also be affected by the environment. Hence, a tremendous amount of meteorological data will have to be available in support of this experiment.

2. Meteorological Data Sources. There are four sources of data required for this experiment. Each is addressed in the following subparagraphs.

a. 100-foot Tower. ASL will provide a 100 foot tower on a prepared 100 x 200 level pad in order to collect wind speeds and directions. This tower will provide information necessary to set the launcher azimuth and elevation up to launch time. The tower will have 5 wind speed and direction gauges spaced at intervals from 15 to 100 feet. All tower data will be provided to the LCC Apollo Computer System via a hardware RS-232C interface and applicable modems. The data source will be within 300 yards of the LCC Computer, therefore an appropriate amplifier may be required. Each level of wind data shall be available at any time of interrogation from the LCC and will be a composite average of the wind speeds and directions sampled every 15 seconds over a 5 minute period.

b. Pilot-Balloon and WF-100 Radar. ASL shall provide Pilot Balloon and WF-100 Radar wind data to assist the experimenter in determining azimuth and elevation settings for launch and missile "go" or "no-go" settings based on wind speeds aloft. The data required is wind speed and direction from zero to 6,000 feet. Data shall be collected as follows:

INFORMATION PAPER

SUBJECT: FCDNA BACKGROUND FOR AIR FORCE MATERIAL...

BACKGROUND:

DoD proposes to realign Kirtland AFB. FCDNA is projected to relocate activities as follows:

1. High explosive test activities are projected to relocate to Nellis AFB
2. Advanced Research EMP Simulator (ARES) and Radiation and Test Analysis Branch remain at Kirtland AFB and the Large Blast/Thermal Simulator (LB/TS) remains at White Sands Missile range (WSMR)
3. All other FCDNA activities to include stockpile Operations, inspections, the Interservice weapons School (INWS), etc. to Kelly AFB.

REQUIREMENTS:

Limited time has not allowed the complete staffing of the requirements or alternatives. While this listing is an adequate basis for planning at this time, other requirements may be identified.

KELLY AFB

- Personnel

Agency -79 Officer, 61 Enlisted, 191 Civilian

Non - Agency -

2 - Military Intelligence Detachment (Army)

6 - DFAS (civilian)

6 - ADP support contractor.

- Special space (note 1)

Administrative support - 15,000 sf includes TS conference rooms and 12,000 sf. of classrooms and conference rooms to support the school.

ADP - 10,000 sf. single processing center capable of processing Top Secret (TS) Data.

Warehousing - 24,000 sf normal industrial security.

Industrial Space - 6,800 sf Print Plant capable of printing and controlling TS information.

Technical Library - 20,000 sf. (TS level).. Includes research facilities for visiting contractors, DoD, and DOE personnel and others.

Structurally changed:

SUBJECT: Technical Weather Support for MISTY PICTURE Experiment 8510/8520

INTERVAL (ft)	INCREMENT (ft)
100-400	100
400-1000	200
1000-2000	250
2000-6000	500

The data shall be taken each and every day, five days prior to launch. The times of day for collection shall be T-3, T-2, T-1, T-1/2, T-1/4, T-0, T+1 and T+2 and T+3 hours, based on a T-0 of 1000 hours. The data will be provided to the LCC Apollo Computer via an RS-232C interface as soon as it is available.

c. Rawinsonde. ASL will provide and operate Ground Meteorologically Detected (GMD) Rawinsonde to provide data used to determine an impact footprint for each nosetip. This data will determine if all flight safety parameters have been met. The data required from this observation platform will be temperature, wind speed, wind direction and air density. The data will be collected from zero to 55,000 feet in 1,000 foot increments and will be provided to the LCC Apollo Computer via RS-232 interface each and every day from T-7 days to launch day. Two rawinsonde launches at T-6 hours and T-2 hours are required on each day. The rawinsonde launch location shall be made as close to the LCC complex as possible.

3. Time of Performance. The 100 foot tower shall be constructed and operational ten days prior to event day currently scheduled for 14 May 1987. All other schedules of data recording and transfer shall use this same date as their basis for determination. ASL must be aware that there may be a slippage in the MISTY PICTURE readiness date and that it must be planned for accordingly.

4. FCDNA will approve and fund for unique equipment procured by ASL to support this event. FCDNA will be responsible for equipment accountability.

5. Funding. Field Command, DNA will provide funding to ASL based on an acceptable cost estimate to be provided by ASL based on the support requirements contained herein.

6. Point of Contact. The POC for these requirements is Lt Ken Fladager, FCDNA, FTS/Commercial (505) 844-4602, Autovon 244-4602.

رئیس، گروه تست

CHARLES G. WALLS
MAJ, USA
Test Group Director,
MISTY PICTURE

SUBJECT: Stockpile Operations (FCP) Background for Air Force Materiel Command (AFMC) Base Realignment and Closure (BRAC) Site Visit 13-17 Mar 95.

DISCUSSION:

- Relocation requirements for FCP are estimated as follows
 - Manpower for 4th Quarter FY97: 2 Officers/1 Civilian
 - Facilities: 3 offices and 1 conference room, ULAN
- Relocation requirements for FCPC are estimated as follows
 - Manpower: 6 Officers, 4 Enlisted and 31 Civilians
 - Facilities: Offices, Top Secret open access 10k sq ft, 400 Sq ft, HVAC, UPS, back-up generator, conference room, CLAN & ULAN
- Relocation requirements for FCPN are estimated as follows
 - Manpower: 3 Officers, 5 Enlisted and 47 Civilians
 - Facilities: 7900 sq ft offices, 100 sq ft Top Secret vault, 18k sq ft controlled access and open storage, 500 sq ft Technical Library and conference room, CLAN & ULAN; envision advon party to begin operations with 1/2 moving coming up online before second 1/2 is taken down to move
- Relocation requirements for FCPR are estimated as follows
 - Manpower: 17 Officers 3 Civilians, 15 Contractors
 - Facilities: Offices with Top Secret/NATO COSMIC ATOMAL open access, conference room, CLAN & ULAN, UPS, backup generator
- Relocation requirements for FCPS are estimated as follows
 - Manpower: 8 Officers 4 Enlisted and 6 Civilians
 - Facilities: Offices with Secret open access, conference room, CLAN & ULAN, UPS, backup power supply
- Synergism of operations at Kirtland

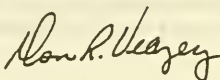
SUBJECT: Interservice Support Agreement (ISA) #W43P6S-87031-010

Commander

U.S. Army Laboratory Command
ATTN: AMSLC-IS-L (Wellman)
2800 Powder Mill Road
Adelphi, MO 20783-1145

1. Reference letter, SLCAS-OP-P, 3 Nov 86, subject: Interservice Support Agreements.
2. A draft copy of the subject agreement between the U.S. Army Atmospheric Sciences Laboratory (ASL) and the Defense Nuclear Agency (DNA) was forwarded to your office along with referenced letter.
3. Since the ISA was staffed through LABCOM at that time, and no problems were found, request that comptroller sign the enclosed DD Form 1144 without delay, and return to this office.
4. ASL POC is Ms. Barbara Sauter, AUTOVON 258-2559.
5. LABCOM - Providing Soldiers the Decisive Edge.

FOR THE COMMANDER:



DON R. VEAZEY
Director, Plans and Programs Office

SUBJECT: AREAS OF ENVIRONMENTAL AND SAFETY CONCERN FOR TESTING AT NELLIS AIR FORCE BASE

DISCUSSION:

-Test Operations would require 10 square miles of test area w/aerial access to deliver ordnance. Also, the site would require the ability to secure an area encompassing the footprint of any air dropped weapons.

-DNA test program planned to include 30-60 high explosive tests per year ranging from small 5-8 lb tests to 4,000 tons of explosive (majority will be less than 1000 lbs of explosives). Other tests will include high temperature incendiaries, fuel-air explosives, nuclear and other WMD simulations. Although static precision munitions tests utilizes 1000-pound or smaller explosives, DNA now conducts additional testing modes, i.e., to deliver precision munitions by aircraft and to fire inert penetrators with the Davis Gun. Precision guided munitions will be delivered by aircraft at high altitude (i.e. 15,000 feet above ground level) at subsonic speeds. DNA proposes to execute from four to ten tests per year designed to study the penetration of inert projectiles through various target materials and configurations by using a Davis Gun or an Air Gun. These devices are fired at point blank range.

-Environmental Impact Statement

-- Nellis Air Force Base is located northeast of Las Vegas, Nevada. The base does not have a EIS in place and presently requires each activity to write their environmental documentation to support test requirements.

-- Nellis has proposed to write a programmatic EA for the base activities, and each test activity would require it's own environmental documentation.

-- Department of Energy at Nevada Test Site has a draft EIS, they don't expect completion until May 1996.

-- Nellis Test Range presently does not have environmental documentation in place for future testing.

-The Test Site encompasses three different counties

-- Nellis range and nuclear testing site is located in Clark (closest to Las Vegas), Lincoln (Northeast portion of the test range), and Nye (largest portion of the test range, northwest portion).

-Air Quality

-- Presently Clark county is nonattainment for PM10 and CO, mitigation plan would be required for above ground testing.

-- Testing in the southeast portion of the range could be a problem with PM10. However, this is only a small portion of the range.

-Endangered Species

-- Desert Tortoise - lower elevations < 4,000 ft.

-- Bighorn Sheep - mountainous terrain.

-- Lizard (Chuck Walla, spelling may not be correct)

Legacy program (2 plants)

-South Range

-- Fish and Wildlife refuge established in 1936

15,000 sf - Nuclear weapons Display area - TS

4,200 sf - 2 Auditoriums (TS)

550 sf - TS Vault (may need to be SCI)

400 sf - Stockpile Emergency Verifications Operations Center

Horizontal construction facilities:

note 1- Special space is determined on the GSA model i.e. 135 sf (net) per person. with general support administrative space included. Special admin space is for external mission support only.

NELLIS AFB

- Personnel

Agency -34 Officer, 27 Enlisted, 60 Civilian

Non - Agency -

?- Military Intelligence Detachment (Army)

?- DFAS (civilian)

?- ADP support contractor.

~~Special space (note 1)~~

Administrative support - 2200 sf includes 2 TS conference rooms for test planing

ADP - 4, 000 sf. single processing center capable of processing Top Secret (TS) Data.

Warehousing - 26,000 sf normal industrial security.

Industrial Space - 19,300

- 800 sf. Calibration Lab

Technical Library - 20,000 sf. (TS level).. Includes research facilities for visiting contractors, DoD, and DOE personel and others.

Structurally changed:

2,900 sf explosives storage bunkers (4@700, 1@100)

note 1 - Special space is determined on the GSA model i.e. 135 sf (net) per person. with general support administrative space included. Special admin space is for external mission support only.

SUBJECT: Stockpile Operations FCP: Background for Air Force Materiel Command AFMC: Base Realignment and Closure BRAC: Site Visit 13-17 Mar 95.

- FCPB: Daily interface with Sandia. Costs associated are increased travel/per diem and longer lead time from conception to fielding for modifications, procedures and policies, fielding new systems/equipment
- FCPN: Daily interface with Sandia, LANL, increased TDY/per diem, increased time to catalog or coordinate materiel movements
- FCPB: No significant adverse impact on current operations
- FCPB: Assessments and Analysis function should be relocated to the Headquarters as mission is not tied to Kirtland/Kelley and more appropriately should be relocated to Alexandria where they receive their guidance; Arms Control function should be relocated to Alexandria--Contract oversight becomes ineffective and can be better accomplished from Headquarters where management and funding are controlled; Weapons Development function should be combined with Assessments and Analysis and combined under the direction of CPNO at Hq DNA
- TCSI Site: Requires 27 acres to relocate and approximately \$10M to duplicate capability; 10-17 Contractors normally support; wouldn't project more than 1E relocating.

RECOMMENDATIONS:

- None, information only
- North Range
 - Tonapah Test Range, and location of Sandia Ops. Use as trg site for Red Flag war games and live drops
- Water Quality
 - Ground water depth ranges from 200-1000 feet.
 - Ground water contamination has become a major issue at the test site and requires extensive mitigation for underground testing.
- Cultural Resources
 - 1500 known Historic and Prehistoric sites on the test site.
- Explosive Storage
 - Are explosive storage bunkers and an operating building available. We need three 10,000 pound and two detonator storage bunkers minimum. Also need an operating building.
 - Are they in compliance for security, grounding, lightning protection.
- Site Plans
 - Are there Site Plans approved by the DoD Explosive Safety Board for the storage site.
 - Are the test areas sited.

Questions:

- Where would DNA testing most likely be sited?
- Other than EA work to support testing, will DNA test activities be adversely affected by environmental considerations?
- Presently, are any biological or chemical simulants use at the test sites?
- Would the area selected for DNA contain duds from previous testing?
- Would prefer an area in a closed water basin and other geological factors (i.e. no faults).

CLOSING COMMENTS

Senator DOMENICI. Do any of the witnesses have anything further to add based on what has been brought out here today?

[No response.]

Senator DOMENICI. All right. Would any of my colleagues like to make a little wrap-up comment?

Mr. SCHIFF. I just want to say I appreciate this hearing, Mr. Chairman. I appreciate everyone's very candid testimony. Obviously, these are agencies that work together, and therefore, there is some potential strain in testifying and in giving any testimony that might appear to be adverse to the position of another agency. But we are all paid by the same taxpayers to do the same job. We should bring our candid opinions forward, as we have done here.

Senator DOMENICI. Jeff.

Senator BINGAMAN. Let me just thank you again for having the hearing. I think we have gotten some good information out here. We need to add that to what we already knew, and hopefully help persuade folks that all that glitters is not gold.

INTEGRATED COST ESTIMATE

Senator DOMENICI. Dr. Narath.

Dr. NARATH. For completeness, I should mention that I have had several conversations with the Air Force Under Secretary, Rudy de Leon, most recently on Friday. He has also had interactions with the Department of Energy directly. And there is an understanding between the Air Force and DOE that before this is all over there will have to be created an integrated cost estimate, and there is a commitment on both sides to do that. But the work simply has not been done yet.

Senator DOMENICI. Anything else, Vic?

Dr. REIS. Well, again, I would just thank the committee for their patience and good questions. My colleagues and I are going to continue to cooperate as much as possible with the Air Force, with the Department of Defense, completely, so we get all the facts out on the table.

Senator DOMENICI. Let me wrap this up by just making one observation. General, you said that the military aspects of DNA have to be maintained. That was one of your criteria.

General HAGEMANN. Yes, sir.

Senator DOMENICI. Is not the military aspect of KUMSC equally as important, if not more so? So using that logic, KUMSC should be moved somewhere else. That would fit nicely in the way we have been looking at it. My own thoughts are this is getting very, very close, I regret to say, to what I would perceive to be a shell game.

I think a decision must have been made somewhere that the Air Force did not have sufficient closures. As you look at it, they had a very meager set of closures, and I am not critical of them. They did a lot more before, and this is not a great list that they have come up with. I think they came up with this because they thought after all, this is just a helicopter wing and a few other things—a training wing that could go anywhere. My honest judgment is that if this is followed through the U.S. Government and the taxpayers of this country will pay far, far more over the next 20 years to try

to keep this place intact for what it must be kept intact for, and yet protect what is there and do the other things that they have to do there. I cannot conceive, with the security risks that are there, the cleanup risks that are involved, and all of these are in my head objectively, just dollars, I do not even want to start thinking in my mind subjectively of what might happen when you take the military away from that facility. But I think you add all that up and it is just one giant mistake.

I thank everybody for helping us today. We will give all this information to the committee. There is nothing this committee can do at this point other than to complain that we are going to have to spend more money through the Department of Energy where not enough is currently being allocated. And I might remind again that an awful lot of what we spend for DOE there—not all of it, because you have made it clear there are some straight DOE activities, but an awful lot of it is DOD moneys that are channeled through Defense in a normal budget matter.

Yes, General?

General HAGEMANN. Sir, excuse me for interrupting.

Senator DOMENICI. No problem.

General HAGEMANN. You had requested some information from the Secretary of Defense in a letter I think the three of you had signed. I have that information today. These materials have been cleared with the Air Force. Regarding requirements, I believe we had already provided that, but here is another copy sir.

SUBCOMMITTEE RECESS

Senator DOMENICI. Thank you. The subcommittee will stand in recess subject to the call of the Chair.

[Whereupon, at 3:58 p.m., Monday, April 3, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 1996

TUESDAY, MAY 2, 1995

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 2:40 p.m., in room SD-192, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici, Hatfield, Bennett, Burns, Johnston, Byrd, and Kerrey.

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

STATEMENT OF JOHN H. ZIRSCHKY, ACTING ASSISTANT SECRETARY OF THE ARMY FOR CIVIL WORKS

ACCOMPANIED BY:

LT. GEN. ARTHUR WILLIAMS, CHIEF OF ENGINEERS

MAJ. GEN. STANLEY G. GENEGA, DIRECTOR OF CIVIL WORKS

DON B. CLUFF, CHIEF, PROGRAMS MANAGEMENT DIVISION, DIRECTORATE OF CIVIL WORKS

OPENING REMARKS

Senator DOMENICI. The subcommittee will come to order.

I apologize for the delay to all the witnesses. I could not get out of the previous meeting.

Let's proceed.

Senator BYRD. We should not be denied the erudition of your opening statement just because you were a little late, Mr. Chairman.

Senator DOMENICI. Senator Byrd, if it was erudite, I would give it. [Laughter.]

Senator BYRD. Perhaps we all better be quiet.

Senator DOMENICI. It might sound incredible that in the midst of all the things I'm involved in these days, I have taken time off the last three nights, maybe 1 hour each night, to read your last book, Senator Byrd, comparing our U.S. Senate to the Senate of the Roman Empire.

Everywhere I read, it sounds exactly like you wrote every word of it. It is very good.

Senator BYRD. I did.

Senator DOMENICI. Some of your expressions are in there.

Senator BYRD. I gave it without notes—

Senator DOMENICI. It is very exciting, too.

Senator BYRD. I tell you a book we ought to all go back and read once in a while—other than the Holy Scriptures, which we should—is Robinson Crusoe.

We ought to just go back and see how it was to live on that island, to move along slowly for 28 years, 2 months and 19 days, just moving along, just take things as they come.

Senator DOMENICI. Well, I am afraid we are past that era for a while.

OK. Shall we proceed with the first panel? Acting Secretary of the Army for Civil Works, Dr. John Zirschky.

Dr. ZIRSCHKY. Yes, sir.

Senator DOMENICI. And we will hear from General Williams, and General Genega following your remarks.

Mr. Secretary, you proceed.

STATEMENT OF JOHN H. ZIRSCHKY

Dr. ZIRSCHKY. Thank you.

I am John Zirschky, Principal Deputy and currently Acting Assistant Secretary of the Army for Civil Works. Accompanying me, as you mentioned, are Gen. Arthur Williams, Gen. Stanley Genega and Don Cluff, who is the Chief of Programs for the Corps.

1995 BUDGET EXECUTION

Before I start on the fiscal year 1996 budget, I would briefly like to review what we are doing with the dollars you provided for us in 1995. With the money you provided, we answered your call.

We streamlined our review process. We have an approved process for one technical review instead of the five we currently have. We will soon have in place one policy review.

We have improved some of our continuing authorities programs from taking those projects that used to take 3½ years down, in some cases, to 75 days.

In response to your call to delegate more to the districts, we have delegated the PCA signing, project cooperation agreement, assigned to the district engineers. And 95 percent of those are being signed in the districts, as opposed to only 31 percent last year.

However, we have given the district engineers authority to approve flight control project cooperation agreements. We have cut down our review time on those from 180 days to about 40.

WETLANDS

On wetlands, a very controversial subject, in July we had over 200 permits that were over 2 years old, permit applications. We now have 62 that are over 2 years old. In the past, our program performance has not been very good.

PROGRAM PERFORMANCE

In 1994, we accomplished about 71 percent of our program. We are going to improve that this year, hopefully to 83 percent.

And currently, as far as our schedules, we are, across the whole Corps, 100 percent on schedule, which is unprecedented for recent years.

In fact, I have included a chart in my testimony to review our program performance, are setting up a performance measurement system that we could brief you or your staffs on at any time that describe how each of the elements of our program are doing.

GOALS FOR FISCAL YEAR 1996

We are also trying to set some goals for fiscal year 1996 with the money that you will appropriate and are asking for your support. We have six goals, four of which are carryovers from our 1995 goals.

The first goal, which is new, is to enhance and expand the role of our project sponsors in our processes to give them, given that they are paying up to one-half of the costs, more control, more input into our processes. We want to evaluate our research and development program. That is a new goal.

Goals that we are continuing from 1995 with your support would be performance measurement to improve how we monitor our performance, to continue restructuring where we look at our roles, missions, business processes and infrastructure, to support key administration initiatives. And our last goal is to improve our business processes.

FISCAL YEAR 1996 BUDGET REQUEST

Now I would like to briefly talk about our fiscal year 1996 budget. This budget, if you approve it, for every new project that we start will return—for every dollar invested will return \$2.21 to the national economy.

For every continuing construction project you support, we will return about \$6.33 for every dollar that you provide. One dollar invested in the inland waterway system will return about \$11. And \$1 spent on recreation will return about \$10.

So we think our program has great economic benefits for the country.

Our 1996 request is for \$3.675 billion, which is comprised of \$3.32 billion in new appropriations and \$357 million in program carryover. That is about a 3-percent reduction in new appropriations from the previous year. But with the carryover, we are pretty level with where we were the year before.

The request for new appropriations includes \$156 million for general investigations; \$785 million for construction, general; \$1.75 billion for operation and maintenance, general; \$112 million for the regulatory program; \$319 million for flood control, Mississippi River and tributaries; and \$197 million for other accounts.

The budget includes two new construction starts, six major rehabilitation new starts, and a separate allotment for the project that is already under construction. And we have 31 new surveys, 5 new preconstruction and engineering design projects.

Because of our willingness and commitment to focus on a performance, we adjusted the schedules to be more realistic. We were able to find the money for these new starts.

Had we not taken the realistic project schedule, we would not have had the money for projects such as Abiquiu Dam, the dam safety project there.

This budget contains some proposed new policies for the Corps of Engineers that in 1996 will save \$29 million and will save cumulatively \$960 million through fiscal year 2000.

Coming up with these policies, the administration was forced to choose between either cutting all the programs so that we would do none well or to try and focus us on missions of national significance.

The missions of national significance were determined to be commercial navigation, national significant flood control, research and development, technical assistance to States, and environmental restoration.

Under the proposed budget, we will phase out of local flood control projects and begin transferring some of our projects to State and local governments.

We are proposing to discontinue the continuing authorities program, to turn over the regulatory program to States, to turn over the local reservoirs and harbors that do not contribute to the harbor maintenance trust fund to States.

The administration has decided to review as proposed flood control policy in light of recent events and, as such, we are conducting now a mission review to look at all the missions that are proposed for the Corps of Engineers and how we can save money.

We will be happy to provide you with a copy of that report, meet with you or your staffs at any time to discuss how we can achieve the deficit reduction required of us if we are going to have a balanced budget.

I will be brief, and in closing we need your help as far as finding ways to make cuts that the Congress can accept. Some of these cuts are very controversial.

We had to ask ourselves what is more important, deficit reduction or continuing the status quo, and we will believe that changes are in order. We seek a cooperative relationship where possible and try to find ways to save money.

PREPARED STATEMENT

With that, Mr. Chairman, I will conclude my statement.
 Senator DOMENICI. Thank you very much, Mr. Secretary.
 [The statement follows:]

PREPARED STATEMENT OF JOHN H. ZIRSCHKY

INTRODUCTION

Mr. Chairman and Members of the Subcommittee: Thank you for the opportunity to testify today on the proposed fiscal year 1996 budget for the Civil Works program of the Army Corps of Engineers. I am John H. Zirschky, Principal Deputy and Acting Assistant Secretary of the Army for Civil Works. Accompanying me are Lieutenant General Arthur E. Williams, the Chief of Engineers; Major General Stanley G. Genega, the Director of Civil Works; and Don B. Cluff, Chief of the Civil Works Programs Management Division.

The President's budget for the Civil Works program for fiscal year 1996 is \$3.675 billion, which is comprised of \$3.32 billion in new appropriations and \$357 million in programmed carryover from prior years. The budget represents a reduction of three percent in new appropriations below the level of appropriations for fiscal year 1995. However, the overall request, including programmed carryover, is approxi-

mately equal to the fiscal year 1995 level, which included \$3.42 billion in new appropriations and \$250 million in programmed carryover. The increase in the portion of the Civil Works budget that would be financed from programmed carryover, in lieu of new appropriations, is necessary to improve our budget execution. The table attached to this statement shows the request for new appropriations, by account and source of funding, along with anticipated non-Federal contributions.

BENEFITS OF THE CIVIL WORKS PROGRAM

We have worked hard to put together a sound budget. Although I can't give you one overall benefit-to-cost ratio for the entire Civil Works program, the benefits of the program are well documented. I would like to highlight some examples of the economic benefits associated with our program.

- For every dollar invested in the new construction starts and new major rehabilitations we have budgeted for fiscal year 1996, we estimate \$2.21 in national economic benefit will result. For every dollar remaining to be invested in construction of the ongoing projects in our program for which benefits have been estimated in monetary terms, the country will receive \$6.33 in economic benefit.
- The economic costs and benefits just cited do not include our proposed investment of \$106.4 million in continuing construction of environmental projects, including the Salmon Recovery program in the Pacific Northwest, whose benefits, although not calculated in monetary terms, are judged to at least equal their costs.
- Continuing and new projects budgeted for preconstruction engineering and design (PED) will, if constructed, produce \$2.10 in national benefits for every dollar spent.
- Our research and development program is estimated to return \$6 for every dollar invested.
- There are many examples of the benefits of continued operation and maintenance (O&M) of Corps projects. On average, each dollar spent on O&M of recreation areas at Corps projects produces \$10 in direct recreation benefit to the public, based on administratively established recreation user day values and recent visitation statistics for Corps projects.
- According to a study completed in 1990, updated for current data, every dollar spent on O&M of the existing inland waterway system results in savings of about \$11.55 in the cost of transporting goods.

We continually strive to improve our efficiency through value engineering and through pursuit of innovative construction techniques. For example, in May of last year, the Louisville District in the Ohio River Division of the Corps decided to pursue an innovative method of constructing a lock and dam that was initially identified in the April 1994 report of the Corps Task Force on Design and Construction Innovations for Locks and Dams. This innovative design and construction plan will use precast concrete elements, eliminating the need for a temporary cofferdam, saving about 2 years in construction time and reducing construction costs on the dam by an estimated \$50 million.

PERFORMANCE IN THE CIVIL WORKS PROGRAM

Before I discuss our priorities for fiscal year 1996, I would like to briefly discuss our ongoing efforts to improve the performance of the Civil Works program. It is important that we effectively execute the programs and projects for which you provide the funds. Let me also stress that we are committed to working with this Committee in implementing the National Performance Review and the Government Performance and Results Act and in improving our performance.

Performance measurement is a key tenet of the National Performance Review. I cited examples of economic return from the Civil Works program because we are placing a high priority on our current effort to use performance measures. In all honesty, Mr. Chairman, we have had problems with mission execution. In fiscal year 1994, we executed approximately 73 percent of the funded program, including carry-over from the preceding fiscal year. This represents decreases of 15 percent from fiscal year 1992 and 2 percent from fiscal year 1993. We are very concerned about this decrease in performance and have taken measures to correct this problem. We believe we have stopped the slide in performance and are making improvements.

The decrease in execution began in fiscal year 1993 when our apparent production capacity decreased by about \$300 million. There appear to be a number of reasons, but we believe a significant factor was the previous reorganization plan, which dramatically affected morale. Our productivity stabilized in 1994 and our output increased by approximately \$400 million, but the large carry-over of funds from fiscal

year 1993 into fiscal year 1994 still caused our overall execution rate to decrease. We are optimistic that we can work off the accumulated carry-over in fiscal year 1996 and fiscal year 1997. To get through this transition, however, we have had to adjust our planning, design and construction schedules.

As shown in the chart attached to this statement, Congress has provided us \$3.42 billion in new appropriations for fiscal year 1995. In addition to this, we currently have a build-up of \$1.3 billion in unexpended carryover from prior years, of which \$450 million is programmed for use in fiscal year 1995 and \$357 million is programmed for use in fiscal year 1996. Based on these schedules, we expect to bring the carryover down to normal operating levels by the end of fiscal year 1997. Our projected execution rate for fiscal year 1995 is roughly 83 percent of the program for which you previously appropriated funds. As of the end of the second quarter, we are executing at a rate which would achieve our scheduled program for fiscal year 1995. We can break this down by major category if you would like.

PERFORMANCE GOALS FOR FISCAL YEAR 1995 AND FISCAL YEAR 1996

To improve our performance, we committed to six goals in fiscal year 1995. This commitment represents, I believe, a significant step toward a more cooperative relationship between the Corps and the Office of the Assistant Secretary. I would be happy to brief you at any time on these goals. Now, however, I would like to discuss six goals we are setting for fiscal year 1996. We seek a cooperative relationship with Congress in developing and pursuing these goals. By working together, we believe we can continue to improve our performance.

As our first goal for fiscal year 1996, we intend to expand and enhance the role of project sponsors in the Civil Works program.

Second, we want to review our research and development program, as a follow-on to an ongoing Department of Defense review.

Continued progress toward restructuring is the third goal. We are now in our thirteenth month of the current effort to restructure the Corps. Restructuring focuses on four areas: roles, missions, business processes, and infrastructure. The Secretary of the Army has approved our new roles statement, policy and technical review processes, and division organizational guidelines.

A fourth goal is to improve our business processes. While actually a subset of restructuring, we listed it as a separate goal to focus on the need to find better ways to provide our products. One measure we have adopted to improve the efficiency of our business processes is the physical co-location, with joint operational support, of districts and divisions that are in the same metropolitan area, but have maintained separate addresses and organizations until now.

Fifth, we want to develop and improve upon our performance measurement and accountability. Until recently, the Office of the Assistant Secretary had no system to routinely track the overall performance of the Civil Works program. It is not clear that such has ever existed. We are developing a means that all levels of the Corps, including my office, can use to monitor performance. The chart attached to this statement is an example of our effort in this area. We would welcome your assistance in this effort. We then want to use this system to ensure that personnel performance evaluations reflect the program performance.

Sixth, we want to ensure key Administration policies are implemented. Our efforts to evaluate our environmental missions are conducted pursuant to this goal.

Mr. Chairman, Members of the Committee, again, we would welcome the opportunity to meet and discuss these goals with you at any time.

OVERVIEW OF THE CIVIL WORKS BUDGET

The \$3.32 billion requested in new appropriations includes \$155.6 million for General Investigations; \$785.1 million for Construction, General; \$1.749 billion for Operation and Maintenance, General; \$112 million for the Regulatory Program; \$319.2 million for Flood Control, Mississippi River and Tributaries; and \$197 million for other accounts. Nearly 18 percent of the fiscal year 1996 budget would be derived from user fees, including \$6 million in the Regulatory Program subject to enactment of proposed legislation. Moreover, this budget would be supplemented by an estimated \$312 million in non-federal cash contributions through the Rivers and Harbors Contributed Funds account.

The President's proposed budget for the Civil Works program will focus our efforts on missions of national significance. These include commercial navigation, nationally significant flood control, research and development into flood control and other areas, technical assistance to States and Tribal governments, and environmental restoration. The Corps of Engineers prodigious technical capability also will continue to be available on a reimbursable basis to provide engineering and construc-

tion management for other Federal agencies in carrying out their nationally significant missions.

NEW STARTS AND NEW INITIATIVES IN FISCAL YEAR 1996

The fiscal year 1996 Civil Works budget includes \$10.3 million for 2 construction new starts, 6 major rehabilitation new starts and a new separable element of a project already under construction. The budget also includes \$10.1 million for 31 new surveys and \$1.5 million to initiate 5 preconstruction engineering and design projects. The total Federal commitment associated with initiating these projects and studies is \$353 million. Attached to this statement are maps showing the geographic location of these new starts.

Among the new surveys for which we are requesting funding is a National Water Supply Demand and Availability Study. This study will help regional, state, and local governments plan for the water supplies they will need in the future. The last such comprehensive survey was done in 1975 by the Water Resources Council (WRC). Recent analysis by the Corps and the U.S. Geological Survey has confirmed that the low-use scenario, predicted nearly 20 years ago by the WRC reflects the actual water use since that time. Notwithstanding this fact, our economic growth and increased sensitivity to the need to ensure sufficient water for healthy ecosystems, combined with droughts in several regions of the country, have heightened the importance of an adequate water supply.

New initiatives reflected in this budget are fully consistent with the objectives of reinventing the Government and focusing the Civil Works program on nationally significant missions. First, we propose to increase funding for Section 22 Planning Assistance to States to \$6 million, the limit of the annual authorization, in order to enable the Corps to make more of its technical expertise available to States and Tribes, to increase coordination with these levels of government, and to assist them in preparing their own comprehensive plans for the conservation, development, and use of their water resources. This program, which is cost shared 50/50, has experienced a significant increase in demand during the last year or two.

Likewise, we propose to increase funding for Flood Plain Management Services to \$15 million, the annual funding ceiling for this program, through which we will help states, Tribes and local governments to develop their own plans and initiate their own actions to mitigate flood losses. Part of this funding will be used to substantially increase technical services to Native Americans and to give special emphasis to assisting Federally Recognized Tribes with flood plain management planning on Indian lands.

We will continue the outreach program begun in fiscal year 1994 to improve government-to-government relationships with Native American Tribes. We will conduct a series of regional workshops with tribal representatives from throughout the Nation to discuss their needs, to identify means to best address them, and to facilitate improved relationships. Some of the Corps districts and divisions already have good working relationships with several Federally Recognized Tribes. Our outreach program will learn from and build on those past successes.

We propose to increase funding for the Section 1135 environmental program to the annual ceiling of \$25 million. The purpose of this program is to improve the environment by taking advantage of opportunities to modify the structure or operation of Corps projects. Full implementation of the Section 1135 program in fiscal year 1996 is a key part of our environmental strategy. Already under the Section 1135 program, we have completed 7 projects, 14 more have been approved for construction, and studies are underway on 43 others. Also as part of our environmental strategy, we propose \$15 million for the Section 204 program for Beneficial Uses of Drcdged Material.

PACIFIC NORTHWEST SALMON RECOVERY PROGRAM

I am pleased to report that on March 10 the Record of Decision for the Corps' actions to be taken in response to the National Marine Fisheries Service (NMFS) Biological Opinion on Columbia River Salmon was signed by the Commander of the North Pacific Division. The draft NMFS Salmon Recovery Plan, which addresses the habitat and hatchery activities necessary to promote the recovery of the Columbia River Salmon, was released to the public on March 20. The fiscal year 1996 budget includes \$79 million to continue the Corps' Salmon Recovery Program.

MAINTAINING CIVIL WORKS FACILITIES

The funds requested in this budget represent a healthy investment in the O&M of our facilities. Our total O&M program, including both Operation and Maintenance

nance, General, and O&M activities funded through Flood Control, Mississippi River and Tributaries, requires 56 percent of our budget.

Each year, our O&M commitments continue to grow. Fewer resources are available for new investments in our country's infrastructure. If we are to continue to serve the Nation's infrastructure needs, we must find ways to reduce our costs or divest some of the infrastructure. We ask for your support as we study means to reduce our costs.

REINVENTING THE CIVIL WORKS PROGRAM

The budget I have summarized reflects several new proposals for the Civil Works program. Savings from some of these proposals will begin in fiscal year 1996 and increase through the 5-year budget planning period. Savings from other proposals will begin to accrue in about fiscal year 1998. These initiatives, which are part of the President's plan to reduce the deficit, will save \$29 million in fiscal year 1996, and \$960 million through fiscal year 2000.

In keeping with the Administration's philosophy of providing the American public with cost effective service at all levels of government, we are proposing a significant change in Federal participation in water resources projects and programs. We were faced with two options in meeting our national performance goals and current budget realities—we could either cut all programs, resulting in none being served well; or we could select the most critical missions from the Federal perspective, and focus on them, resulting in quality service in a smaller arena. We would look to the States and other non-Federal interests to carry on the other missions to the extent needed.

The President's fiscal year 1996 Budget, as transmitted to Congress in February, assumed that the Corps would maintain its focus on projects of broad national scope and significance, including commercial harbors and inland navigation, emergency response, integrated multi-state flood control projects such as some on the Mississippi River, and other flood control projects that meet more stringent criteria than in the past. The budget proposed that the Corps complete projects currently funded for construction that would be considered local under the new policy, but not begin new ones. This would achieve increasing savings in the out-years. Criteria for maintaining a Federal role in flood control were proposed in the President's Budget. The proposed policy would likely result in solutions to flood risks that would increasingly reflect local priorities, and it could encourage improved flood plain management, watershed planning and more effective zoning. The Administration currently is examining alternatives to the proposed flood control criteria and would be pleased to discuss with Congress alternatives that also would achieve the needed budgetary savings.

For work already underway, we intend to complete the currently funded phase of work, but we have not budgeted to continue certain activities into the next phase. Also, no funding is included in the budget after fiscal year 1995 for the Aquatic Plant Control program, which addresses localized problems.

Included among measures to achieve savings after fiscal year 1996 are the following: termination of funding for new projects under the Continuing Authorities Program, beginning in fiscal year 1997; working with appropriate local authorities to gradually turn over the operation and maintenance of existing local reservoirs and the maintenance of harbors that do not contribute to the Harbor Maintenance Trust Fund; and working closely with the Environmental Protection Agency to enable States to begin assuming responsibility for the Section 404 Regulatory Program.

This budget reflects the President's Reinventing Government Initiative, under which all Federal agencies are reexamining their missions. We are in the process of conducting a thorough review of all Civil Works missions. Later this month, we will complete a series of partnering conferences with our customers. We have recently undertaken a thorough mission review and will be providing interested parties, including this Subcommittee, a report identifying widely ranging options for redefining the Corps mission. We will invite comments and proposals from Committees of Congress, other Federal agencies, States, local sponsors and non-governmental interest groups. We will continue to examine our programs for additional savings by addressing the Civil Works mission based on "customer" input, asking whether the mission could be accomplished as well or better without Federal involvement, looking for ways to cut costs or improve performance through competition and ways to put customers first, cut red tape, and empower employees. We need to be aggressive in pursuing these opportunities in order to achieve further savings for the out-years.

Mr. Chairman, Members of the Subcommittee, we need your help. I realize some of the proposed new policies are controversial. We want to contribute to deficit re-

duction and, while most of our programs have benefits in excess of costs, if we are to achieve the necessary savings we must decide what our priorities are.

LEGISLATION IN SUPPORT OF THE BUDGET

Consistent with the President's efforts to reinvent government, the Administration will propose legislative specifications regarding the Corps Civil Works missions. In doing so, we are ensuring a full discussion on the Administration's proposed future direction of Corps water resources projects and programs.

In addition to these legislative specifications, legislation is necessary in support of the fiscal year 1996 budget in order to authorize the collection and expenditure of increased user fees from commercial applicants in the Regulatory Program. Legislation also is proposed to indefinitely authorize the continued maintenance of the National Inventory of Dams, a compilation of data on the physical characteristics and capacities of Federal and non-federal dams.

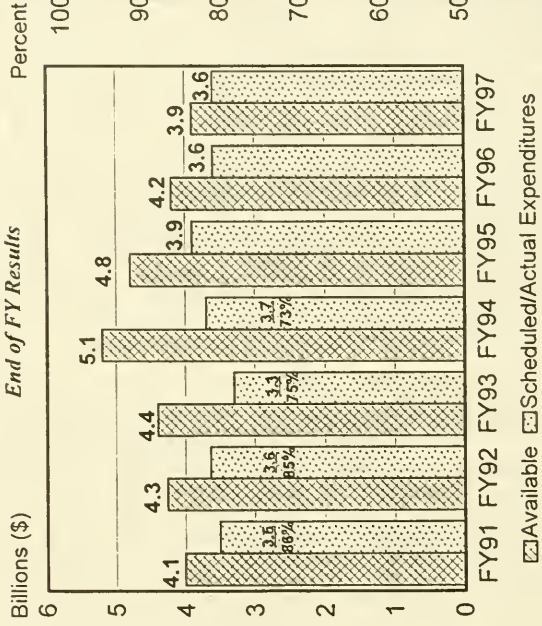
CONCLUSION

In conclusion, I would emphasize the stringent principles we have applied in determining our requirements for new appropriations for fiscal year 1996 and the efforts we have underway to improve performance in the Civil Works program. I ask for your support as we move forward to streamline and restructure the Corps of Engineers. Thank you Mr. Chairman, Members of the Committee. This concludes my statement.

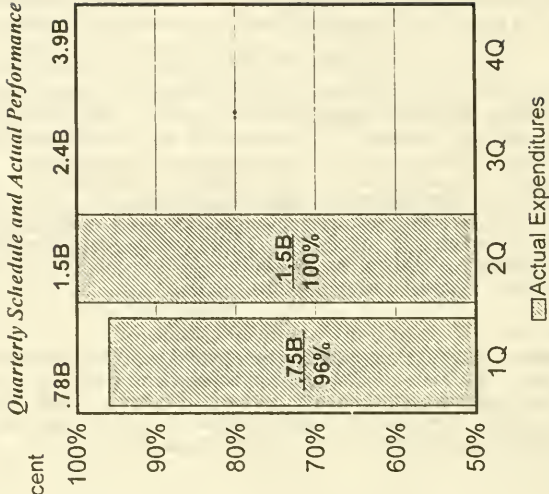
FY 95 Total Program

Funds Available, Scheduled, Expended

Program Trends



FY95



Goal: Expend 96% (\$3,764M) of the scheduled amount (\$3,908M).

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS - CIVIL WORKS
FY86 BUDGET

FUNDING
(Dollars in Thousands)

ACCOUNT	FEDERAL FUND				SOURCE		NONFEDERAL FUNDS ^{a/}		TOTAL
	INLAND WATERWAYS	TRUST HARBOR MAINTENANCE	OIL SPILL LIABILITY	SPECIAL RECREATION USE FEES	GENERAL	TRANSFER	RIVERS AND HARBORS CONTRIBUTED REQUIRED	ANCILLARY TOTAL	
1. USAGE APPROPRIATION									
GENERAL INVESTIGATIONS	-	-	-	-	155,825		40,000	5,100	200,775
CONSTRUCTION, GENERAL	48,000	0	-	-	737,125		214,700	20,800	1,070,625
OPERATION AND MAINTENANCE, GENERAL	0	500,000	-	30,000	1,219,875		1,000	8,600	1,757,875
REGULATORY PROGRAM	-	-	-	-	112,000		0	0	112,000
P.C., MISSISSIPPI RIVER & TRIBS	-	-	-	-	319,250		12,700	100	332,050
GENERAL EXPENSES	-	-	-	-	164,725		0	0	164,725
FLOOD CONTROL & COASTAL EMERGENCIES	-	-	-	-	20,000		0	0	20,000
OIL SPILL RESEARCH	-	-	850	-	0		0	0	850
PERMANENT APPROPRIATIONS	-	-	-	-	11,296		0	0	11,296
ALL	48,000	500,000	850	30,000	2,739,896		266,400	32,600	3,619,948
2. COASTAL WETLANDS RESTORATION TRUST						30,861	10,376	0	41,237
3. ALL						3,355,737	278,976	32,600	3,667,313
DOMESTIC DISCRETIONARY						(3,307,450)	0	0	(3,307,450)
MANDATORY (DIRECTED)						(48,277)	(278,976)	(32,600)	(360,053)

^{a/} Cash contributions required by law for programmed work, and provided for ancillary work beyond federal interest done at full nonfederal cost.

^{b/} Not including \$4,555,600 in programmed carryover from FY85.

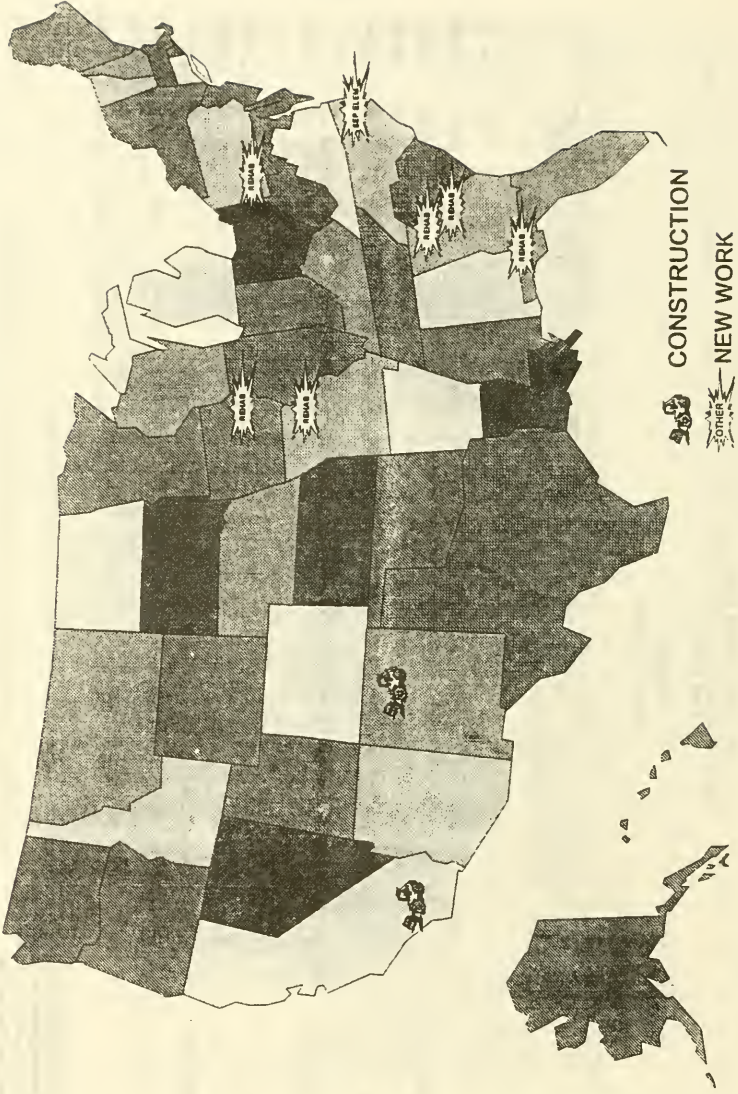
^{c/} Not including \$352,125,000 in programmed carryover from FY85.

^{d/} Derived from the Special Recreation Use Fees receipts.

^{e/} Share of appropriation from Oil Spill Liability Trust Fund for an approved, multi-agency R & D program.

^{f/} Share of appropriation from U. S. Fish and Wildlife Service's Sport Fish Restoration Account (funded by Small Engine Fuel Tax receipts) for long-term conservation, protection, and restoration of coastal Louisiana.

CONSTRUCTION NEW STARTS AND OTHER NEW WORK FY 1996



RECONNAISSANCE STUDY AND PRECONSTRUCTION ENGINEERING AND DESIGN NEW STARTS FY 1996



Senator DOMENICI. I failed to ask Senator Johnston or Senator Byrd if you had some opening remarks.

Senator JOHNSTON. Well, you wanted some that were important and—

Senator DOMENICI. Yes, erudite.

Senator JOHNSTON [continuing]. Erudite. I did not have any erudite comments. So I will pass.

Senator DOMENICI. And, Senator Byrd, did you—

Senator BYRD. I have none. Thanks.

Senator DOMENICI. If you had any, they would be erudite.

Senator BYRD. Thank you.

STATEMENT OF ARTHUR WILLIAMS

Senator DOMENICI. We are going to move now to General Williams, Chief of the Corps of Engineers followed by General Genega. We will have questions after that.

Senator DOMENICI. OK, please proceed, General.

General WILLIAMS. Mr. Chairman, members of the subcommittee, I appreciate the opportunity to again testify before you on the President's fiscal year budget as it pertains to our Civil Works Program.

My oral statement is going to be brief. I am going to cover three topics very briefly: No. 1, our Civil Works Program budget; No. 2, a couple of items of program management; and No. 3, a few comments on performance improvement challenges that we have.

FISCAL YEAR 1996 BUDGET REQUEST

So let me start first with our proposed budget, which is \$3.67 billion. This amount includes an appropriation request of \$3.32 billion, plus a \$37 million transfer of receipts from the sport fish restoration trust fund into the coastal wetlands restoration trust fund, and another \$312 million of non-Federal cost-sharing contributions.

In addition, the 1996 program includes \$357 million from unobligated carryover of prior year appropriations. The addition of these funds brings our total fiscal year 1996 budget \$4.02 billion, excluding any offsetting receipts that we may have.

The total program budget request of \$3.67 billion is nearly the same as the amount in 1995, as Dr. Zirschky had stated. The 1996 program reflects the President's efforts to reinvent the Government, to focus the Corps' attention on programs and projects of national significance.

We have funds requested for several new starts, 31 new reconnaissance studies, five new preconstruction engineering efforts, two new construction projects, six major rehab projects and one separable element.

Of the \$3.32 billion request, \$579 million or 17 percent would come from existing user fees and trust funds. And with the associated non-Federal cost-sharing contributions, more than 25 percent of the new funding in our 1996 program comes from sources other than general revenue.

PROGRAM MANAGEMENT

My second topic is program management. In support of the administration's "National Performance Review" and reinventing government initiatives, the Corps has several initiatives to streamline its organization and operations.

Recently, we eliminated review layers by centralizing our policy review at the headquarters, and we are decentralizing our technical review down to the district offices.

We also developed a flatter, more decentralized, structure for operations and readiness function to better respond to our project customers. And by September 1996, we will have reduced the number of headquarters internal management directives and publications by more than 50 percent.

In addition, by fiscal year 1999, we will have increased our supervisor-to-employee ratio from its 1 to 6 currently to a 1 to 10. We will also reduce the number of high-grade personnel by 10 percent.

We will have reduced the Corps work force by about 12 percent. And it should be noted that the President's reinventing Government initiatives will require further staff reductions of an additional 9 percent by the year 2000.

We also have several task forces reviewing our national headquarters are our field division organizational offices. In addition, we are preparing plans to install the one-stop technical review at our districts and streamlining various study processes that we have within the Corps.

Collectively, these actions are intended to do several things: Reduce costs, simplify administrative and technical processes, empower the employees and make us more responsive to our customers.

PERFORMANCE IMPROVEMENT

My third and final topic addresses performance improvement challenges. As Dr. Zirschky mentioned, we have had some problems in fully executing our Civil Works Program. These problems have created an unacceptably large amount of unprogrammed carryover dollars.

We have undertaken some specific actions to reduce and ultimately eliminate them. And I will briefly discuss some of our actions.

One of our actions involves more accurate estimating. And we are concerned about our performance and efficiently using the appropriated and the non-Federal sponsor funds to deliver projects on schedule and within the cost estimates and certainly the quality that is needed.

This year, we have increased our focus on producing more realistic schedules and expenditures.

Another of our actions is to increase our productivity, which is a challenge in an environment of downsizing. We are approaching this in several ways.

First, we are delegating more of our decisionmaking responsibilities down to the district level. This in turn is being accompanied by downsizing our national headquarters here in Washington and our field division staff offices across the country.

Second, we are changing our business processes, and some examples are as follows: Centralizing policy review at the headquarters, as stated earlier. We are decentralizing our technical review down to the district offices.

We are delegating decision authority on project cooperation agreements down to the district level. We are eliminating iterative reviews from our business processes in order to reduce our costs, save some time and achieve a flatter organization and empower the work force.

And the third way to obviously increase our productivity is to utilize advancements in technology, and we are doing that through the use of many innovative pieces of technology that our labs have produced over the years.

In conclusion, I strongly believe that our Civil Work Program continues to benefit the Nation. However, as I briefly outlined, we do, in fact, have a number of challenges facing us.

But I am confident in our ability to respond to them. We have a long history of continually seeking improvements in the delivery of our services and projects.

PREPARED STATEMENT

Mr. Chairman and members of the committee, this concludes my oral statement.

Senator DOMENICI. Thank you very much, General.

[The statement follows:]

PREPARED STATEMENT OF LT. GEN. ARTHUR E. WILLIAMS

INTRODUCTION

Mr. Chairman and members of the subcommittee: I appreciate the opportunity to testify before you, with the Acting Assistant Secretary of the Army for Civil Works, Dr. John H. Zirschky, on the President's fiscal year 1996 Budget for Army's Civil Works Program. My statement covers these three topics: Fiscal year 1996 Civil Works Program Budget, Program Management, and Performance Improvement Challenge.

FISCAL YEAR 1996 CIVIL WORKS PROGRAM BUDGET

OVERVIEW

The proposed fiscal year 1996 Civil Works Program budget is \$3.67 billion. This includes an appropriation request of \$3.32 billion through the Energy and Water Development Appropriations Act; \$37 million for Louisiana coastal restoration work, funded by transfer of receipts from the Sport Fish Restoration Trust Fund into the Coastal Wetlands Restoration Trust Fund; and \$312 million in nonfederal financing from Rivers and Harbors Contributed Funds. In addition, the fiscal year 1996 program includes the programming of \$357 million from unobligated carryover of prior year appropriations in the General Investigations and Construction, General, accounts. The addition of these funds brings the total fiscal year 1996 Civil Works Program budget to \$4.02 billion, exclusive of offsetting receipts.

As shown in Table A, the total program request of \$3.67 billion for fiscal year 1996 is nearly the same as the amount for fiscal year 1995. This is consistent with changes in the program proposed in the President's Reinventing Government initiative and the recently submitted budget amendments. The fiscal year 1996 program reflects the President's efforts to reinvent government and focus the Corps' efforts on projects of national significance. Funds are requested for 30 new reconnaissance studies, 5 new preconstruction engineering and design efforts, 2 new construction projects, 6 major rehabilitation projects, and 1 separable element. The budget also provides follow-on funding for nearly all projects and studies that are underway, including a large number of studies and projects that received initial funding in fiscal year 1995 appropriations. The fiscal year 1996 program includes no new reconnais-

sance studies or new construction starts for local projects for flood protection or beach erosion protection. Projects and studies initiated in fiscal year 1995 or earlier are proposed for funding to complete the current phase. For example, reconnaissance studies initiated with fiscal year 1995 funds are budgeted for completion of that phase.

Of the \$3.32 billion appropriation request, \$579 million, or 17 percent, would come from existing user fees and trust funds, including fuel and ad valorem taxes. The budget includes a proposal to increase permit fees for commercial activities of the Regulatory Program to fund a portion of the program. It is estimated that the increased fees would generate \$6 million in fiscal year 1996 and \$12 million annually in future years. Associated cost-sharing contributions increase to more than 25 percent the portion of new funding in the fiscal year 1996 Civil Works Program from sources other than general revenue of the Federal Treasury.

GENERAL INVESTIGATIONS

Funding is included in the fiscal year 1996 budget to continue planning on surveys initiated in prior years. 30 new survey studies are proposed to begin in fiscal year 1996. The budget includes funding for the initiation of 5 preconstruction engineering and design (PED) projects for which the planning was conducted under the current 2-phase process, in partnership with a non-Federal cost sharing sponsor. The addition of these 5 will bring the total number of PED projects in the fiscal year 1996 budget to 62.

The General Investigations (GI) account includes \$3 million for the National Assessment of Water Supply Demand and Availability. This initiative is the subject of a fiscal year 1995 reprogramming proposal submitted to you on 7 February 1995. The funding requested for fiscal year 1996 would be applied to continue this 3-year \$5.5 million initiative to collect data, refine and apply models, and undertake an extensive collaborative effort with public interest groups, water management institutions, and water users.

CONSTRUCTION, GENERAL

The budget request of \$785.1 million for Construction, General (C,G), in combination with \$352 million in programmed unobligated carryover, will continue 139 regular construction, 7 major rehabilitation, 8 dam safety assurance, 2 deficiency correction, and 2 reconstruction projects. This funding will be supplemented by an estimated \$214.7 million in nonfederal cash contributions. Funding is included for 9 construction and major rehabilitation new starts. In addition, the budget includes \$101.1 million for remaining items, including \$41 million for the final year of funding for the Continuing Authorities Program.

OPERATION AND MAINTENANCE, GENERAL

The budget includes \$1.75 billion for the Operation and Maintenance, General (O&M,G), account. This represents an increase of about 6.3 percent from the fiscal year 1995 appropriation level. The funding is adequate to sustain services to the public at current levels. This increased funding is due to more projects on line, new environmental requirements, and the fact that older projects require more maintenance. Part of this increase is from recreation user fees, which will be used for operation, maintenance, and rehabilitation of these facilities. The public should see no negative impact in the operation of recreation areas or dredging of harbors and channels resulting from this funding level.

FLOOD CONTROL, MISSISSIPPI RIVER AND TRIBUTARIES

The fiscal year 1996 budget provides \$319.3 million for the Mississippi River and Tributaries (FC,MR&T) Project. Before application of savings and slippage, this includes \$5.3 million for investigations, \$217.9 million for construction and \$134.2 million for maintenance. This account reflects application of the same policies applied to the previously discussed accounts. There are no new starts.

REGULATORY PROGRAM

The fiscal year 1996 budget supports implementation of the Corps' part of the President's Wetlands Plan to improve the effectiveness of wetlands protection while reducing regulatory burdens on the public. The requested \$112 million is an increase of \$11 million over the fiscal year 1995 appropriation. \$6 million of this increase will be used to establish a new administrative appeals process, by which applicants can appeal permit denials and jurisdiction decisions without resorting to litigation.

RESEARCH AND DEVELOPMENT PROGRAM

The total Civil Works research and development (R&D) request for fiscal year 1996 is \$48.9 million. R&D is funded primarily through the GI and O&M,G, accounts, \$35.6 million and \$12.2 million, respectively. Smaller amounts of funding come from General Expenses (\$0.3 million) and the Oil Spill Trust Fund (\$0.8 million). The R&D activities are in the area of applied research and are structured to meet the highest priority needs of Corps districts and divisions.

FLOOD CONTROL AND COASTAL EMERGENCIES

The budget includes \$20 million to fund the basic preparedness requirements of the Flood Control and Coastal Emergencies (FC&CE) program. This level of funding is sufficient to ensure our capability to respond to natural disasters, including hurricanes, floods, droughts, earthquakes and other events, as well as manmade disasters that could result in contamination of public water supplies. The basic level of funding budgeted for this program, as well as the workforce it supports, will be supplemented as necessary in the event of a major disaster requiring the Corps to respond.

I am gratified by the immediate and widespread response of the Corps civilian workforce when disaster strikes. From across the Nation, Corps employees volunteer to travel to disaster areas and use their skills to aid in response and recovery.

GENERAL EXPENSES

The General Expenses (GE) appropriation request is \$164.7 million to fund executive direction and management activities at the Corps headquarters, 11 division offices, the Coastal Engineering Research Board, Humphreys Engineer Center Support Activity, Engineering Strategic Studies Center, and Water Resources Support Center.

The fiscal year 1996 GE budget consists of two parts: Baselevel Operating Expenses and Civil Program Accounts. The baselevel operating expenses are comprised of 71 percent labor, 23 percent fixed costs, and 6 percent discretionary operating expenses. This portion of the budget request is \$157.7 million, a 3.3-percent increase over fiscal year 1995 at \$152.5 million, for personnel compensation increases and normal inflation in rent, utilities, and telecommunications costs, as well as additional implementation costs, principally for training, associated with the new Corps of Engineers Financial Management System (CEFMS).

The remaining \$7 million in the GE budget is required, principally, to fund civil works activities previously centralized at headquarters for economy and efficiency purposes and billed back across benefitting projects, but to be discontinued as "bill backs" by the end of fiscal year 1995. Those activities determined to be necessary for continuation will either be direct-funded in the most appropriate account; financed through the Plant Replacement and Improvement Program (PRIP) account, where appropriate; or charged on a fee-for-service basis where there is a clear benefit to projects and a user need. The Civil Program Accounts consist primarily of those activities previously centralized which, after a thorough review, are considered necessary for continuation as a headquarters activity, and thus are budgeted in the GE account.

The \$6.8 million remaining available from the \$7 million authorized in fiscal year 1993 for restructuring will be used in the current and budget year to continue the Secretary of the Army's efforts to restructure the Corps.

CORPS-WIDE SAVINGS

The budget request incorporates the Federal Workforce Reduction Act staffing reductions and projected savings from procurement reform initiatives and implementation of FTS 2000.

REIMBURSED SUPPORT FOR OTHERS

A sizable part of the Corps' program—that part for which funds are neither appropriated nor transferred to the Corps, directly—is not reflected in the budget. It comprises reimbursed support for other federal agencies (about 50) and governments through work in environmental, engineering, and construction management. Total reimbursement funding for such work in fiscal year 1996 is projected to exceed \$700 million. (Most of this—over \$400 million—is for environmental work.) The largest share—nearly \$240 million—is expected from EPA for cleanup of wastes at numerous sites under its Superfund Program. The next largest share—nearly \$120 million—is expected from the Department of Energy (DOE) for facilities engineering

and cleanup of hazardous and toxic wastes at nuclear weapons production sites in South Carolina, Texas, Washington, and other locations.

STAFFING

Civil Program staffing for fiscal year 1996 is 27,359 FTE's, reflecting a reduction of 480 FTE's from the fiscal year 1995 total. This total includes 1,283 FTE's for reimbursed support for others.

PROGRAM MANAGEMENT

INTRODUCTION

Usually, this part of my testimony is devoted to highlights of recent civil program management; however this year it has been expanded to summarize our support for U.S. military operations. My goal is to give a better sense of the full scope of Corps service to the Nation, and to show synergy between our two programs in that service.

SUPPORT FOR MILITARY OPERATIONS

We are proud of the Corps' post-Cold-War contributions to U.S. military contingency operations. Support to operational military forces is a key service to our Nation, and the Civil Works Program enhances Army's capabilities at no additional cost to the Department of Defense or Civil Works Program budgets or their respective civilian manpower ceilings. The program offers challenging work, training, and attractive careers to engineers and other professionals. It provides Army with significant experience in dozens of specialized fields that would not otherwise be possible. Such experience in contract administration, for example, enabled the Corps to develop, award, and manage Army's Logistics Civilian Augmentation Program contract (better known as LOGCAP). Designed to support U.S. forces in contingency operations worldwide, it has been used in Somalia, Rwanda, Saudi Arabia, and Haiti, for work ranging from base camp construction to logistical services. Much of the equipment and supplies for these recent U.S. military operations moved over waterways and through ports maintained under the Civil Works Program. These water transportation facilities are vital parts of our Nation's military power projection capabilities.

CIVIL WORKS PROGRAM

Congressionally-directed Changes

Introduction.—Last spring, I appeared before you in response to the Surveys and Investigations (S&I) reports. At that time, I presented many management actions that had been completed as a direct result of the S&I reports, and indicated a number of further actions I would be taking. I'd like to review briefly the four areas that the reports covered: Information Systems Modernization Program (ISMP), Headquarters Centralized Accounts; the Revolving Fund (RF), including PRIP; and Project Management, and provide closeout on actions previously reported as ongoing or remaining to be accomplished.

Information Systems Modernization Program.—In response to the S&I staff review of the Corps' ISMP, the Corps has taken a number of actions to improve its management of automated systems. These include submitting the entire ISMP for Major Automated Information Systems Review Council (MAISRC) review in accordance with Department of Army requirements; establishing a life-cycle management requirement for all Corps automated information systems to ensure that they are periodically reviewed for continued need and cost effectiveness; implementing changes in finance and accounting procedures to capture all automation costs; and appointing a single Corps-wide data manager.

Streamlining of CEFMS is ongoing. Benefits from innovations in software maintenance tools in the areas of system change controls and records retrieval are anticipated but will not be realized until fielding at more Corps sites. The full impact of business improvement opportunity savings and out-year cost avoidances in the CEFMS environment also will not accrue until completion of testing at the South Atlantic Division in March 1996. However, following are actions taken or soon to be taken.

—Streamlining the curriculum and reviewing the mix of Corps/contractor personnel teaching at the CEFMS Train-the-Trainer Institute. This resulted in a \$224 thousand saving in fiscal year 1994, with an estimated cost avoidance of \$972 thousand over the next 3 years.

- The initial CEFMS Economic Analysis (EA) of 29 October 1992, was updated by the HQ U.S. Army Information Systems Command. Independent verification of this update is underway by the U.S. Army Cost and Economic Analysis Center (CEAC). The updated CEFMS EA reflects the most current cost and productivity savings projections, and shows a benefit/cost ratio is 4.2.
- The Program Manager for the ISMP established criteria for limiting the procurement of electronic signature equipment (an estimated cost avoidance of \$2.1 million) until completion (expected in late fiscal year 1995) of an ongoing evaluation by the General Accounting Office and the National Institute for Science and Technology, and final approval of the electronic signature solution for government-wide use.
- The USACE Cost of Doing Business Task Force has been charged with expeditiously addressing business process improvements and savings as recommended by, and in unison with, our CEFMS test participants. We anticipate that many Corps business processes will be streamlined by the CEFMS solution, most notably high volume ones including: Labor (CETAL), Travel Orders, Travel Vouchers/Claims, Purchase Requests and Commitments (PRC's), and Requests for Training (DD1556).
- The submission of a Quarterly CEFMS Status Report as requested in House report 103-533, of 26 May 1994, to accompany the Energy and Water Development Appropriation Act, 1995, has begun. This report provides the Committee with a quarterly execution snapshot of the Project Management CEFMS Office progress.

Headquarters Centralized Accounts.—I directed elimination of Headquarters Centralized Accounts, effective 1 October 1995, for activities accomplished centrally for selected programs and projects and "billed back" to benefitting divisions or districts. Each centralized activity funded in fiscal year 1995 was examined to determine its continued need in fiscal year 1996, and beyond. For those still needed, alternate direct- or "fee-for-service"-funding has been designated, as shown in a section of our justification materials called Centralized Accounts. This section includes a table showing final disposition of all headquarters activities funded in fiscal year 1995. Any activity to be direct-funded is detailed in justification materials of the more appropriate account (either GE or GI account). Some parts of systems development, financed through the PRIP since fiscal year 1994, will be financed this way until they are fielded.

Project Management.—The findings of the S&I team regarding project management indicate that the project management business concepts the Corps is implementing were needed and continue to be essential for effective and efficient management of projects. Each division commander has been working diligently to assure that the concepts of the project management business processes are fully implemented within his districts. We have progressed beyond the implementation stage into the operational stage. We continue with many efforts to reduce the Civil Works Program processes for producing projects; streamlining reviews and delegating authorities. A review of project management data requirements imposed upon the field was conducted and 23 percent of the data elements were eliminated. A report defining a potential system for measuring the cost effectiveness of the project management system was completed 1 Oct 94 by a field task force. This report will constitute a baseline document for use by the Directorate of Civil Works in meeting the Assistant Secretary's goal of having a performance management system for use in fiscal year 1996. My senior staff will be reviewing the operation of the project management system to assure that its effectiveness is being realized. As I indicated last year, the implementation of a change of this magnitude has been difficult, but the results are proving to be very satisfying as our partners and customers are verifying.

Revolving Fund.—In response to the S&I staff review of the Corps' Revolving Fund and its PRIP, the Corps has taken several actions to improve management of both. With regard to the RF, the Corps has confirmed with the Deputy Assistant Secretary of the Army for Financial Operations that its treatment of accrued annual leave accounts was correct; brought all subordinate activities in compliance with regulations pertaining to the charging of aircraft costs; and reemphasized to subordinate activities the importance of achieving year end balances as close to zero as possible. The Corps has provided the Committee with a RF financial statement for the end of fiscal year 1994. With regard to the PRIP the Corps has established new policies which limit purchases of nonconstruction equipment, ensure that plant depreciation and increment charges are applied consistently to all PRIP assets, and provide for termination of increment charges when the asset is fully depreciated and will not be replaced.

REGO

In furtherance of the Administration's National Performance Review and Reinventing Government (REGO) initiative to create a government that "works better and costs less," the Corps has several initiatives to streamline its organization and operations. Recently, we eliminated review layers by centralizing policy review at headquarters and are decentralizing technical review to district offices. In addition, we have developed a flatter, more decentralized structure for the Operations and Readiness function for better response to project customers. By September 1996, we will have reduced the number of headquarters internal management directives and publications by more than 50 percent. By fiscal year 1999, we will have increased our supervisor-to-employee ratio from 1:6 (current) to 1:10 (target), reduced the number of high-grade personnel (GS 14-15, SES) by 10 percent, and reduced the Corps workforce by approximately 12 percent. The President's reinventing government initiatives will require further staff reductions of an additional 9 percent by 2000. We also have several task forces working to review the headquarters organization; review division structures, prepare plans to install one-stop technical review at districts and streamline the feasibility study process. These actions, collectively, are intended to get back to basics—reducing costs, simplifying administrative and technical processes, empowering employees and becoming more responsive to our customers.

OPERATIONS

Water Control

Flood Control.—Though flooding occurred in many parts of the nation in fiscal year 1994, the magnitude in surface area and damages was far less than in fiscal year 1993—the year of the Great Midwest Flood. Intense storms in the southeastern United States during July 1994 produced maximum-of-record flooding in the Ocmulgee and Flint River basins.

Other Purposes/Activities.—Review and update the Master Water Control Manual for the Main Stem Missouri River Reservoirs is in the environmental impact statement (EIS) stage of the study process. The Draft EIS was released to the public in fiscal year 1994 and more than 20 public meetings have been held at numerous locations within the Missouri River and Mississippi River basins. The recommended plan in the Draft EIS calls for some changes to the reservoir system's current water control plan. The focus of the changes is on the timing (seasonality) and magnitude of water releases from Gavins Point Dam into the lower Missouri River for navigation, and fish and wildlife management. (We are reconsidering this plan and, ultimately, may not be recommending it.)

In the Pacific Northwest, Army continues to support the interagency efforts to protect and restore endangered Columbia River salmon runs. The National Marine Fisheries Service (NMFS) is the lead agency in this effort and will issue a Biological Opinion on 22 February. This opinion will include reasonable and prudent measures that the Corps and other federal Columbia River Power System operating agencies (Bonneville Power Administration and Bureau of Reclamation) should take in order to avoid jeopardizing the endangered salmon runs. A Record of Decision is scheduled to be signed by the Corps on 1 March.

Emergency Operations

Midwest Flood Recovery.—The Corps continues to be involved in response and recovery activities related to disaster events since January 1994. During and since the winter of 1994, the Corps has continued rehabilitation of levees damaged from the Midwest Flood of 1993, under Public Law 84-99 (Flood Control and Coastal Emergencies). We expect to spend \$230 million in repairing 201 levees damaged by the event. Repairs have been completed for 179 of these, and are underway for the balance. Wet conditions throughout the year and problems in getting rights-of-way have hindered progress. During the flood, we did \$20 million in emergency flood fighting.

California Earthquake Recovery.—The Northridge Earthquake (6.8 on the Richter scale) occurred 17 January 1994, in Southern California. The Corps actively supported FEMA earthquake relief and recovery efforts with over 800 personnel. The earthquake killed over 50 people and injured more than 9,000. Damage estimates, including both insured and uninsured losses, total led over \$20 billion. Missions ranged from providing electrical power to distributing water, to structural inspections of schools, public buildings, medical facilities, and constructing a temporary rail facility for mass transit. The value of the FEMA mission assignments exceeded \$23 million. In addition, the Corps inspected its own projects and continues to coordinate with state and local governments. Public Law 84-99 activity for Northridge

was approximately \$1 million. The Corps also administered a \$4.8 million mission assignment for the Small Business Administration that involved housing inspections.

Tropical Storm Alberto.—During the summer of 1994, Tropical Storm Alberto created floods in the Southeastern United States and caused extensive damage that resulted in response and recovery missions under both Public Law 84-99 and Public Law 93-288, The Robert T. Stafford Disaster Relief and Emergency Assistance Act. The Corps was again tasked (over \$26 million in mission assignments) to provide ice, portable toilets, potable water, temporary housing, damage inspectors, and technical assistance. Under Public Law 84-99, the Corps participated in flood fight operations, provided technical advice, issued sandbags and pumps, and began the task of rehabilitating the damaged dams and levees.

California Floods.—Shortly after the new year began, California was ravaged by a series of storms for 10 days, resulting in 11 deaths and about \$300 million in damages, with more than half the state being declared a disaster area. Again the Corps was called into action. Under our existing authority we provided emergency contracting to provide for the removal of debris from threatened bridge structures, conducted emergency levee repairs, provided sandbags, and technical advice and assistance. In addition, under the authority of Public Law 93-288, the Stafford Act, the Corps was assigned \$13.2 million in missions by FEMA for debris clearance from drainage basins (\$9.5 million), restoration of a flood control channel (\$2.0 million), Preliminary Damage Assessments (\$130 thousand), and Damage Survey Reports (\$1.5 million). The Corps is also providing personnel to support multiple Disaster Field Offices for the event (\$60 thousand).

PERFORMANCE IMPROVEMENT CHALLENGE

INTRODUCTION

As Dr. Zirschky described, we have had problems in fully executing the Civil Works Program. These problems are manifest as unprogrammed carryover amounts. These amounts have grown, for various reasons, over several years, until, now, they are unacceptably large. We have undertaken specific actions to reduce and, ultimately, eliminate them, as described next.

PROBLEM DEFINITION

As shown in Table B the rates of expenditures, generally low for fiscal year 1994, are projected to improve somewhat for fiscal year 1995. Nevertheless, the problem remains significant for the Construction, General, Program, reflecting a projected \$600 million unprogrammed carryover amount from fiscal year 1995 to fiscal year 1996. This reflects our planned use of \$352 million in unobligated carryover to finance the fiscal year 1996 program.

IMPROVEMENT GOALS

Accurately Estimating Capability

We are concerned about our performance in effectively and efficiently utilizing appropriated and nonfederal sponsor funds to deliver projects on schedule and within cost estimates. Our project managers have a propensity to be optimistic in the delivery of services at the project level. This year we have used the budget process to produce more realistic schedules and cost estimates. Experience at the national level reflects that project schedules and expenditures are often beset by unanticipated problems in local sponsor financing, real estate acquisition, environmental issues, design concerns, contract bid protests etc., which frustrate the optimism inherent in project schedules. I believe we have taken significant steps towards improving our statements of requirements on an individual project basis and also on an overall district workload basis. Our district and division commanders are including project and program performance in their project management and program managers performance standards and evaluations.

Conforming Schedules to Ability to Perform

We are equally concerned about improving our program execution to correspond with what we originally schedule with our project partners. We are encouraging our project managers to enter into more effective partnering relationships with projects sponsors so that both parties can realistically establish requirements and schedules. In addition, this budget request has been formulated in a manner that takes into account the capability of each district. By scheduling projects in accord with our capabilities and improving our emphasis on partnering relationships, we expect more realistic assessments of our partnership requirements and abilities will lead to more

realistic planning, design and construction schedules. We have issued guidance and implemented plans in the past year which strengthen our partnering relationships and customer feedback arrangements.

Increasing Productivity

General.—Increasing our productivity in an environment of downsizing is a challenge. Our efforts to do so are focused on improving the productivity of the work force that is retained. We are approaching this in two ways.

First, we are increasingly empowering our employees by delegating decision making responsibilities down to the district level which formerly were retained at the division and headquarters level. We are also directing that accountability flow with that powering down process. This, in turn, is being accompanied by downsizing headquarters staff levels. Downsizing of headquarters and division offices translates into increased productivity by significantly reducing decision time and the time allocated in project schedules to review processes.

Second, we are changing business processes. Three examples, two of which are discussed under REGO, are centralizing policy review at headquarters, decentralizing technical review to district offices, and delegating decision authority on project cooperation agreements to field offices. We are eliminating iterative reviews from our business processes, significantly simplifying them to reduce cost, achieve a flatter organization, and empower the work force most closely involved in delivering products and services to our customers.

Third, we are increasing the investment in technology made available to our employees. The Scanning Hydrographic Operational Airborne Lidar (SHOALS), developed in partnership with the Canadian government, decreases the cost of nearshore hydrographic surveying. Recently, surveys were conducted at 9 coastal inlets with a cost savings of \$300 thousand over traditional methods. We believe SHOALS will produce over \$3 million in annual savings. Another example is the Hydrologic Evaluation of Landfill Performance (HELP) model, which is a microcomputer-based tool for evaluating/designing landfills. Sixteen Corps districts use HELP for review/evaluation of designs for Superfund projects and for waste disposal systems at military installations. HELP saves about \$2 thousand per review, over \$5 thousand per design, and probably over \$100 thousand in construction per facility. More than 75 reviews, 15 designs, and 15 construction projects are performed per year.

Additionally, all districts use Computer-Aided Drafting and Design (CADD) systems which allow our engineers to see their designs in real-time. The districts use Geographic Information Systems (GIS) or other computer mapping systems to produce maps faster and with greater accuracy than with old labor intensive methods. The Corps and Coast Guard have collaborated to install four Global Positioning System (GPS) radiobeacons at sites along the Mississippi River to provide real-time positioning for government and commercial users (marine, land, and air). Coverage includes all states along the Mississippi River between Iowa and Louisiana. These new tools find application across the board—in our water resource, military construction, and environmental restoration mission areas. For example, for some river engineering and construction missions (e.g., hydrographic surveying and dredging operations) the Corps and many of its contractors have increased productivity up to 50 percent through use of GPS. Aerial crop dusters in Mississippi and Arkansas now depend on this system to control spraying lanes.

Improving Performance Measurement.—We have increased our focus and emphasis on performance measurement in several dimensions. District, division, and headquarters management reviews focus on performance measures unique to their level in evaluating schedule performance, effective use of funds, and accountability for the products for which they are responsible. We are implementing schedule and cost performance measures designed to evaluate, on a bi-monthly basis, how we are performing in meeting project schedules and staying within cost estimates. Complete and effective use of these measures will be enhanced once our project management information systems (PROMIS) is deployed and operational.

In the O&M arena, a performance measurement system is being installed that will facilitate assessment by the organization at all levels of how various measures contribute to improvement of the program and how productivity can be increased. These measures, to be in place by fiscal year 1996, will focus on “results” and “outcomes.” This system will link national program performance indicators with indicators at the project where the actual work is performed. In this way, every employee will know how his or her job contributes to corporate goals and objectives. We are calling this process “The O&M Plan of Improvement.” It supports the objectives of the National Performance Review and is a pilot project under the auspices of the Government Performance and Results Act (GRPA).

Improving Production Standards.—This is a dimension of performance that we feel pretty good about. Our customer feedback surveys reflect that we are delivering quality products. Customer feedback has resulted in our directing our priority efforts at improving our performance in delivering projects on schedule and within cost estimates. We want to maintain quality while reducing the time and cost overruns being experienced. Accordingly, we are emphasizing improvements in our production processes to achieve cost reductions and better schedule performance in producing the quality products we take pride in.

Improving Production Processes.—We are investing a considerable effort in this area because of our customer feedback and the initiatives to downsize government. It presents the challenge of maintaining or increasing production with declining human resources. We continue to invest in research and development and technology to improve the production processes and the tools available to our workforce. For example, we are testing innovative technologies for constructing lock and dam projects to reduce the cost and time for bringing such projects on line. We have been investing in modernized computer technologies which facilitate planning, design and managing the large complex projects which we build.

Conforming Organization Structure

We view redefining our organizational structure as offering the greatest potential for improving our production processes. We are increasing our efforts at redefining our organizational processes for decision making. We have been working with the Administration and the Congress over the past several years in defining acceptable ways to restructure our organization to improve the efficiency of the Corps in delivering projects. An example of our efforts in this regard is in the O&M arena, where we have standardized the organizational structure so that operations project managers, in charge of one or more projects, report directly to the Chiefs of Operations, responsible for the programs. This decentralizes decision making at the project level, where the "rubber meets the road."

CONCLUSION

Our Civil Works Program continues to benefit the nation as evidenced by our investment analyses and customer feedback surveys. We, however, have a number of performance improvement challenges facing us; and I am confident in our ability to respond. We have a long history of continually seeking improvement in the delivery of our programs. Our most recent investments in adjusting the Corps' business culture to achieve improved performance and greater customer satisfaction has been the institution of project management. The need was apparent when we entered the era of cost sharing on the projects we build. The fruits of that cultural adjustment are beginning to emerge in terms of greatly improved partnership relationships with state and local governments.

We are now devoting our energies to empower our workforce at the lowest possible level and improve the efficiencies of our decision processes. This will improve our performance in delivering projects authorized by Congress and simultaneously enable us to be responsive to current initiatives to downsize government.

Thank you Mr. Chairman and Members of the Committee. This concludes my statement.

TABLE A.—PROGRAM SUMMARY, FISCAL YEARS 1994, 1995 AND 1996

[Dollars in thousands]

Source of funds	Fiscal year		
	1994 appropriation	1995 appropriation	1996 request
Federal appropriations:			
General investigations	\$207,540	\$181,199	\$155,625
Construction, general:			
General funds	1,279,282	912,631	737,125
Inland waterways trust funds	121,593	71,037	48,000
Total	1,400,875	2,983,668	785,125
Operation and maintenance, general:			
General funds	1,170,990	1,147,535	1,219,875

TABLE A.—PROGRAM SUMMARY, FISCAL YEARS 1994, 1995 AND 1996—Continued

[Dollars in thousands]

Source of funds	Fiscal year		
	1994 appropriation	1995 appropriation	1996 request
Special recreation use fees	18,000	37,000	30,000
Harbor maintenance trust funds	500,000	462,000	500,000
Total	1,688,990	1,646,535	1,749,875
Regulatory program:			
General funds	92,000	101,000	106,000
Proposed user fees			6,000
Total	92,000	101,000	112,000
Flood Control, Mississippi River and Tributaries	348,875	328,138	319,250
General expenses	148,500	152,500	164,725
Flood control and coastal emergencies	150,000	14,979	20,000
Oil spill research	¹ 350	¹ 900	¹ 850
Permanent appropriations	12,000	11,979	11,296
Total, appropriations	4,049,130	² 3,420,898	3,318,746
Other available funds (nonappropriated):			
Coastal wetlands restoration trust	34,939	35,000	36,981
Rivers and harbors contributed funds	206,000	223,995	311,776
Total program	4,290,069	² 3,679,893	3,667,503

¹ Corps portion of multi-agency R&D program funded by appropriations from oil spill liability trust fund.² Excludes \$250,000,000 in unobligated carryover from prior years that is being programmed for use in fiscal year 1995, of which \$50,250,000 is derived from the inland waterways trust fund.

TABLE B.—PROGRAM EXECUTION

[In millions of dollars]

Account	1994 actual			1995 scheduled		
	Available	Expended		Available	Expended	
		Amount	Rate ¹		Amount	Rate ¹
General investigations	260	170	0.65	272	222	0.82
Construction, general ²	1,857	1,047	0.56	1,793	1,172	0.65
Operation and maintenance, general	1,834	1,690	0.92	1,752	1,706	0.97
Flood control, Mississippi River and tributaries	438	375	0.86	391	391	1.00

¹ Ratio of total expenditure to total available for expenditure.² Including Inland Waterway Trust Fund.

STATEMENT OF SENATOR BENNETT

Senator DOMENICI. Two more Senators arrived. I wonder if either of them—I will start with you, Senator Bennett—have any opening remarks you would like to make.

Senator BENNETT. Thank you, Mr. Chairman. I have a number of questions for General Williams, but I will wait for the question and answer period.

I would, as a matter of opening remark, however, even though it deals with the Bureau of Reclamation who will follow this group, take a brief moment and express my appreciation publicly to Commissioner Dan Beard for the work that he has done.

He has developed an excellent reputation in his 2-year tenure as head of the Bureau of Reclamation. I know he is in the back of the room. But we have worked closely with him. He has had to make some difficult decisions that we are aware of.

And if for any reason I am called away when the time comes for that panel and am not here, I want to reflect on the record my recommendation of him.

I would say to General Williams that he and I had a phone conversation where he was very responsive to the concerns that we had out in Utah.

I want to talk about those in some detail, but I want to welcome the General here and thank him for his responsiveness to the challenges that we did have.

That is all I have, Mr. Chairman.

Senator DOMENICI. Senator Burns, did you have any opening remarks?

PREPARED STATEMENT

Senator BURNS. I would just ask that you enter my statement in the record. And due to the hour, I would rather hear the statements of the witnesses and get to questions. Thank you very much, Mr. Chairman.

[The statement follows:]

PREPARED STATEMENT OF SENATOR CONRAD BURNS

Mr Chairman, I want to thank you for holding these important hearings. Like your state of New Mexico, my state of Montana is a state that holds water in high regard. We often don't have enough of it, and it holds the key to our economic future. These two agencies, the U.S. Army Corps of Engineers and the Bureau of Reclamation, are the agencies charged with developing water resources in the west. For the most part, they have done their job and done it well. But the task is not over.

Montana is the only state in the union whose waters flow into three oceans; the Missouri which flows to the Mississippi into the Gulf and the Atlantic; The Clarks Fork which flows into the Snake and the Columbia into the Pacific; and the watershed on the North side of Glacier Park which flows into Hudson's Bay and into the Arctic Ocean. Montana is a key headwaters state. But while water holds the key to our economic future, other states also have uses for Montana headwaters water and they are beginning to aggressively go after that water.

Take for instance the Missouri River Master Plan developed by the U.S. Army Corps of Engineers for the operation of the Missouri along its entire length. For many years the primary function of the river, according to the plan, was to provide water for the navigation of commercial barges, which because of the dams upstream, was a benefit only to the lower basin states. Recreation, irrigation, municipal water use and wildlife habitat upstream were forced to take a back seat in the Corps decisions regarding the use of the Missouri.

But that is slowly changing. After some lawsuits, and much forceful argument, the Corps is beginning to recognize the water needs of the upper basin states. Fort Peck and Canyon Ferry in my state offer important recreation, irrigation and municipal water use for the area. We cannot stand by and watch water recede into mud flats during the height of our tourism season. There is hope that the Corps is changing the way it views the Missouri river.

It's a different story on the Columbia, however. The Endangered Species Act as it pertains to the Pacific Salmon is being used as a battering ram by some to dismantle the dams that feed that system. In Montana, it's the water they are after. Again, we in Montana cannot stand by and watch our economic future wash downstream. The ratepayers of the Pacific Northwest, including Montana are struggling

under unprecedented rate increases. It's a double whammy that may jeopardize the economic future of my state.

There have been some successes, and we need more of them. I was glad to secure funding through this subcommittee for the construction of a selective control device that would help regulate the temperature of the water coming out of Hungry Horse Dam. The installation of that device helps reduce the conflicting needs of the salmon and our own threatened species the bullhead trout. We need more of these sorts of cooperative solutions and less of the 'Washington Knows all' dictates of the Marine Fisheries Service and the Fish and Wildlife Service.

In Montana, we have not yet examined all of the potential water resources we have. And as I said at the outset, water is the key to our future. With that, I'd like to hear from the witnesses.

Thank you.

RED RIVER WATERWAY, LA

Senator DOMENICI. All right. I am going to ask Senator Johnston if he has questions. You can go first, and then Senator Byrd, and then I will go third.

Senator JOHNSTON. Mr. Chairman, thank you very much.

I want to welcome Dr. Zirschky, General Williams, General Genega and Don Cluff here. I always like to welcome them, but this is an especially important time for us, for the Corps of Engineers, in Louisiana, because this weekend we will dedicate the Red River Waterway, which was at its time the largest public works project in the country, very efficiently and well done, on time, at least the Corps said when they thought they could finish it, on budget, with an excellent job done.

And it is going to revolutionize the economy of the whole Red River Valley. It is going to be a great thing for the country.

And I hope—General Williams, I think you are supposed to be there, are you?

General WILLIAMS. Unfortunately, not at this one. I am going to be at West Point welcoming some brand new folks into the Army.

Senator JOHNSTON. Well, I don't know whether you have your priorities straight, but I understand. [Laughter.]

General Genega, will you be there?

General GENEGA. Mr. Bates, the Deputy Director of Civil Works, is planning on being there at the moment.

Senator JOHNSTON. Well, you all are going to miss a real celebration. It is going to be awfully good. But I will not beat up on you too bad on that one, since you did a good job in building the project. That was the important thing. It is going to be quite a thing.

Senator DOMENICI. What is the project?

Senator JOHNSTON. It brings navigation to the town of Shreveport, LA, which just coincidentally is where I was born and grew up. [Laughter.]

Senator DOMENICI. Pure coincidence, I am sure.

Senator BURNS. It is supposed to be a port for at least 100 years, was it not, and you just got it done?

Senator JOHNSTON. Shreveport was founded by Capt. Henry Miller Shreve of the Corps of Engineers, who made the river navigable way back in 1835 and he since became nonnavigable. And now we are restoring it to the way God meant for it to be. [Laughter.]

LAKE PONCHARTRAIN AND VICINITY, STORM WATER DISCHARGE

Dr. Zirschky, as you know, the Lake Ponchartrain storm drainage system was authorized in the Water Resources Development Act of 1992. We have a terrible problem there, as you know, with storm water runoff which impacts the sewerage discharge system.

We authorized that work to be done in 1992. We put language in the Energy and Water bill of 1995, urging you to get on with the cooperative agreement with Jefferson Parish.

Now, there has been way, way too much delay in that. I understand there has been some hesitation on entering into these cooperative agreements, these cooperative agreements, but we do that all the time.

When we relocate a railroad, we would always have a cooperative agreement with the railroad company to move the railroad, or with utilities, we do the same thing.

Jefferson Parish built and maintains this system. There is no reason not to do it with them. There is plenty of precedent for it. It breaks no new ground. And it has been specifically authorized, and we put language in. Now can we expect you to move with some dispatch on this now that we have—

Dr. ZIRSCHKY. Yes, sir; and I apologize for the delay. We have had our counsel review the issue, who determined that we can, in fact, proceed as you desire. And we will work on doing that.

Senator JOHNSTON. Well, I think there has really been too much delay on this, and it is not precedent setting. It is entirely what we have done on many, many other projects greatly needed, and they can do it with this cooperative agreement much cheaper than anybody else can.

NEW FLOOD PROTECTION POLICY

Now, I want to talk just a minute about this new policy of local flood control protection and requiring a 2-to-1 BC ratio. I just think the reason the budget is unbalanced is not because of infrastructure projects.

The Corps of Engineers, with less than, what, one-tenth of 1 percent of the budget of the United States, is not causing this budget problem. And to make new policies and new requirement of a 2-to-1 BC ratio, I think, is just—I think it is dead wrong.

And I also think it is dead wrong when you do away with local projects. When we have a local disaster, a tornado or a hurricane or a huge flood where people are hurt, the country comes to the aid.

We do not call that a local disaster. And why we should call a flood control program that impacts tens of thousands of people and potentially could cause billions of dollars of damage, why that is only a matter of local concern, I do not understand.

In my State we have interstate or national problems with the Mississippi River system. Yes; some are local like the Amite River basin. We just had a flood there, but we are just now getting rid of it.

It caused millions of dollars of damage. And the potential there is for billions of dollars and huge loss of life and property.

And why we ought to have this new synthetic rule that says it is no longer a function of the Corps of Engineers to be involved, I think, is just dead wrong.

And I want you to know I am going to resist it in the strongest way possible, because I think it is wrong. You are not going to balance the budget by failing to help people with terrible flooding problems.

As I said, I suspect these new rules did not originate with the Corps of Engineers, but you are the only ones we can talk to about it. I guess somebody fed it to you, and you have to feed it to us. Well, whoever did the initial feeding was wrong. And I just want you to know I am strongly going to resist that.

Would you like to respond to that?

Dr. ZIRSCHKY. Well, the administration has decided to review that 2-to-1 benefit cost ratio, 75 percent local share, 51 percent of the flood waters coming from outside the State. They have decided to review those criteria.

We are currently looking at a number of options, which are listed in our mission review report, one of which is to tie the flood protection program to the flood insurance programs, so that there is some linkage between trying to cover both the response costs and the preventative costs, to try and link the two programs together.

Senator JOHNSTON. Well, you know, you could say the flood waters come from out of State. The rain clouds came from out of State. So it seems to me that ought to be enough.

RED RIVER CHLORIDE CONTROL PROJECT

Now, we are having navigation on the Red River, which we are going to kick off this weekend, the chloride control project along the Red River is not complete.

As you well know, the need for drinking water and irrigation water is a continuing need. And I would simply urge the Corps to continue with this project, which is very much an interstate project.

Would you give me an update on what the Corps' plans are, General Genega?

General GENEGA. Yes, sir; I can handle that for you. We have just recently received the section 7 consultation from Fish and Wildlife Service, and that was a nonjeopardy opinion as part of the environmental impact statement process.

FISH AND WILDLIFE COORDINATION ACT

We expect now to file the supplemental final EIS in February 1996. And that was necessary in order to respond to the draft Fish and Wildlife Coordination Act report, which had opposition to the project from Fish and Wildlife Service and from the State concerned about endangered species.

I think that process—

Senator JOHNSTON. Is that the striped bass?

General GENEGA. Sir, it was—there were several species, sir, and I am not sure I have them all here. I would have to give you that for the record, but I believe there were several of them.

Senator JOHNSTON. I think the real opposition is not so much endangered species as the striped bass, which was artificially brought

in anyway. But I think the real fishermen are concerned about the striped bass.

Different kinds of fish will come in there. I do not know what harm it does to the striped bass, but—

General GENEGA. Our belief right now, sir, is that we can identify appropriate mitigations measures such that we can get on with the project. We are in the process of doing that right now, and that is our intention.

Senator JOHNSTON. Well, that is a very, very important project of immense utility to the Nation and certainly to my State. We have enough drinking water right now, but we are very quickly running out of that.

And the potential for irrigation is really great, thereby to enhance the agriculture resource, which is a national resource.

So I would urge you to continue on that.

Thank you, Mr. Chairman.

Senator DOMENICI. Senator Byrd?

Senator BYRD. Mr. Chairman, I would be very happy to wait my turn, if you like.

NEW FLOOD CONTROL POLICY

Senator DOMENICI. Thank you very much.

First, let me just take a shot at what Senator Johnston referred to in terms of the so-called new policy with reference to flood protection. I can remember vividly the 1986 Water Resources Development Act. I played a role in that.

We had a very serious hangup here in the Congress with the executive branch, and we worked it out in such a way that we, for the first time, had the 25 percent cost-sharing requirement. And frankly, a lot of good flood protection projects are even having difficulty out in the rural areas of our states in coming up with their cost-sharing requirement.

I do not want to say that every single program of the Federal Government does not have something to do with the deficit, because I believe they all do. Senator Byrd, I think I have seen 50 groups, many from my home State, as we prepare for a budget, and I have not yet found one that volunteers to have their program restrained, cut, changed, altered, or amended. Yet, they all acknowledge we had better balance the budget, but none volunteering.

So, I do not think the Corps is going to go up, but I do believe we should not, under the guise of reform, just wipe out a program.

But to require a 2-to-1 benefit cost ratio and 51 percent of the floodwater from out of State—I mean, we just as well announce that we do not have a program. If that is what we really want to do, I am far more for saying it, because I do not believe there would be very many projects left.

That does not mean that we have ever promised every locale who had an acceptable cost-benefit ratio that their project would be funded. That is why these programs are subject to appropriations. If we do not have the money, we do not pay for it.

So I am leaning in the direction of joining with my friend, or asking him to join with me, in seeing what we can do to at least keep it a reasonable policy, lower the expectation that we will be able to pay for it all, but not throwing out 98 percent of the projects

that are never going to qualify and still say we have a program. That is my current thinking.

FEDERAL PARTICIPATION IN WATER RESOURCE DEVELOPMENT

Now the administration's budget indicates that significant changes in the Federal participation in water resource development will be proposed.

How does the administration plan to proceed with the implementation of these changes? Does the administration plan to implement any portion of the changes before appropriate authorizing committees have had a chance to review this?

Do you plan to submit a comprehensive proposal to the appropriate authorizing committees for consideration before proceeding, or even to the Appropriations subcommittee?

What portion of your plan can be implemented without authorizing legislation? What portions need to be changed by law?

Who wants to answer that? You do, Dr. Zirschky?

Dr. ZIRSCHKY. I will, Senator. If I miss a point, please let me know.

The administration has already proceeded with policies. For me, these are already used in putting together the 1996 budget. There were projects that were not proposed for funding because they did not meet these proposed policies.

I do not know of any legislative language for the most part that needs to be enacted to affect the administration's budgeting decisions. Cost sharing might be one caveat.

However, there is nothing that prohibit sponsors from voluntarily providing more. I do not expect a large number of volunteers to provide more, however. So, the administration has already proceeded.

We are looking at some legislative specifications to submit. I am not sure when those will be submitted. That will come from OMB.

You mentioned about agencies volunteering. We want to volunteer. We want to help contribute to deficit reduction. I do not know how many of my colleagues across Government are saying that, but we want to help you cut the budget.

And we have a report on different ways to achieve that with our program, that we would share with your staff. And if there are alternatives, particularly on flood control, to what the administration has proposed, we would welcome the opportunity to work with you.

NATIONALLY SIGNIFICANT PROJECTS

Senator DOMENICI. Well, let me then just proceed with a few more questions, and then I will submit additional ones in writing, because I think we need to know. What will the criteria for determining what is a nationally significant project or program and what is not?

Could you give the committee some examples, or, if it might be more appropriate, could you tell us in writing how that is going to be done?

Could you answer that one first?

Dr. ZIRSCHKY. Yes; I would like to submit a more detailed answer for the record, but the criteria for flood protection, the administra-

tion is reviewing those. So at present, we do not have a criteria for flood protection.

For navigation, it is whether or not the harbor contributes to the harbor maintenance trust fund. If it does not, then it would not be maintained by the Federal Government.

For the regulatory program, this proposal did come from the Corps, and we are proposing to let the States run the regulatory program, but we are not proposing to provide funding for them to do so. That would save about \$65 million. We have not had any volunteers yet to do that.

Senator DOMENICI. So how many projects currently underway will be affected by these policy changes? Could you provide a list of those projects for the record, along with a list of those projects that received funding in 1995 and are not included in the 1996 because of this proposed change?

Dr. ZIRSCHKY. Yes, sir; we can provide that for the record. However, the general policy we are using is that we will finish whatever phase that a project is in. So if we have one that is already under construction or was to start construction in 1995, we budgeted for it generally in 1996.

Senator DOMENICI. I will submit some more precise questions that you can answer for the record. Is 2 weeks adequate time?

Dr. ZIRSCHKY. That should be sufficient, sir.

Senator DOMENICI. All right. So you can do that within 2 weeks. I have some additional questions, but I think I have taken enough time. I will be here for the rest of the afternoon.

Senator Byrd.

MISSION REVIEW REPORT

Senator BYRD. Thank you, Mr. Chairman.

Dr. Zirschky, you have said that the proposed policy is being revisited as a part of the mission review report. What is the process and schedule for this review?

Dr. ZIRSCHKY. We released a mission review report, I believe, a week from last Friday and are sending it to all of our districts and divisions. I do not believe we have yet provided it to the Hill.

We are going to close the comment period on about May 22 and then analyze the comments that we get to see if there is any consensus across the country or in our constituent groups for what changes people believe they could support. So probably the end of May or June, we would have that compiled and could brief you on that.

Senator BYRD. So when does the administration intend to advise the Congress as to what its new proposal will be?

Dr. ZIRSCHKY. I do not know whether it has been scheduled, Senator. We had hoped to submit legislative specifications by now, but decided instead to revisit some of the policies. And it will depend on when that review is completed.

Senator BYRD. Mr. Chairman, I am encouraged to hear your statement and that of Senator Johnston, and I associate myself with your remarks and those by Senator Johnston with respect to changing the Federal cost-sharing requirement for flood control projects and also with respect to changing the benefit to cost-ratio criteria.

The proposed changes are going to make it more difficult for local communities to qualify. And I for one do not think that we ought to attempt to balance the budget on the backs of the local communities that have real flood control projects and real flood control problems.

God said that he would not destroy the world again by water, but he did not say we would not continue to have some floods. And I think if these changes go into effect, they are going to prove to be penny wise and pound foolish. And we are going to be sorry in the long run.

I do not believe that the proposed policy is a wise one. I hope the subcommittee will not concur it. And I am not blaming the witnesses at the table at all. I just do not happen to agree with the administration on this, as on some other things.

And I do not think we ought to penalize infrastructure to have a tax cut at this particular time. And, of course, these are part of the ingredients that will go to pay for that unwise tax cut.

Flood protection is critical in portions of my State. And failure to hold to agreements already in line will do nothing but lessen the potential losses. Failure to provide adequate flood protection may not save the Government money in the long run if it results in increased costs for the Federal Emergency Management Agency, and it will.

And as evidenced by the current debate over financing for disaster relief, it will not be easy for the Government to provide assistance after the fact, and it is much more costly in future years.

So, I think it makes good sense for us to continue to make the necessary investments in our flood protection infrastructure to protect the areas at risk. I do not mean to be overly critical of the Corps. I am sure the Corps is trying to carry out the wishes and policies of the administration. But I think the administration is wrong on this.

RITCHIE COUNTY, WV

I have a couple of questions with regard to the project in Ritchie County, WV. Funds have been provided through the Appalachian Regional Commission for the construction of a multipurpose flood retarding structure and supporting facilities on the north fork of the Hughes River.

As part of this process, the Corps of Engineers has responsibility for issuing the necessary section 404 permit.

It is my understanding that headquarters decided that the Huntington District would make the final decision on this matter with case-specific guidance. What can you tell me about the progress in completing the necessary reviews for this project?

General GENEVA. Sir, I can answer that for you.

Senator BYRD. Yes, please.

General GENEVA. The guidance has been provided by telephone. It will be provided in writing before the end of the week to the Huntington District commander. He has been told that the alternatives analysis that the sponsors have gone through is, in fact, adequate, and he may proceed with the permit decision.

Senator BYRD. Very well. When do you anticipate him making a decision as to whether or not the Huntington District has complied adequately with the guidance, the directives?

General GENEVA. Well, sir, I have made that decision. They have complied adequately.

Senator BYRD. Very well. I am very interested in this project, and I hope that you will undertake every possible effort to ensure that it is not subject to further delay.

The funds for the project have been appropriated, and the sooner the permit review process is completed, the sooner the project can proceed. I am glad to hear that progress is at last being made.

There have already been too many delays, and I hope that you will inform me when final action has been taken.

General GENEVA. Yes, sir; we will.

Senator BYRD. Huntington is ready to proceed.

General GENEVA. Yes, sir.

Senator BYRD. They need the final approval from headquarters, and I hope that will be forthcoming to the committee, as my chairman has suggested.

General GENEVA. Yes, sir.

Senator BYRD. Mr. Chairman, I will submit further questions for the record.

Senator DOMENICI. Thank you very much.

Senator BYRD. Thank you.

And I thank the witnesses.

WASHINGTON COUNTY, UT, FLOODING

Senator DOMENICI. Senator Bennett.

Senator BENNETT. Thank you, Mr. Chairman.

General Williams, I would like to just review the situation that you and I talked about and take it from the specific to a general policy issue that I think is an appropriate one.

For those not privy to what happened in Washington County at the southern end of Utah, I will give you this very brief history.

We had three floods which occurred within a 6-week period, the last of which was the most significant flood in 60 years and caused extensive damage.

As a result, Governor Levitt, the Governor of the State of Utah, declared a state of emergency, called out the National Guard. And the weather forecasters were telling us there was going to be still more rain.

The sediment deposit coming from these floods cut the river channel capacity one-half, and the course of the river was changed.

Naturally, community leaders were very anxious to do something about this, particularly when there was a community downstream from the changed direction of the river that was in imminent danger of loss of property, if not loss of life.

They were unable to get a straight answer out of the Corps of Engineers as to what they could or could not do. Local leaders were surprised to discover that jurisdiction in Washington County was shared by both the Los Angeles and Sacramento offices of the Corps of Engineers.

Corps of Engineers personnel stationed in Utah made recommendations as to what should be done for emergency action, but

they were second guessed by the regional offices. And as a result, there was no action.

When the regional offices in Los Angeles and Sacramento finally did become involved, an additional 4 days were wasted in flying people in and out to make evaluations, but no decisions.

BAKER DAM RESERVOIR

A small dam above St. George, UT, the Baker Dam Reservoir, had eroded in this process, was declared an immediate hazard, which made the local leaders, community commissioners, mayors and so on, even more desperate for permission to do something.

But no straight answers were forthcoming and recommended actions were questioned as to their legality, with one office second guessing the recommendations of another and paralysis setting in.

And finally, they were told in St. George you cannot proceed to do anything about the channel in this river, because there is a candidate species of fish, the Virgin River spinedace, that might in some way be damaged. We understand this has not been listed as endangered yet, but it is a candidate to possibly be listed, and you can't do anything.

And at that point, I got on the phone and called General Williams. And as I said in my opening remarks, as a result of General Williams' phone call, decisions were made, and things began to happen in St. George that for 4 days had not been happening.

They are still not completely pleased with us, General, down there. For example, what would take a caterpillar a few hours to solve the problem and restructure the channel and relieve the emergency, workers have had to spend days working from the banks, because the Army Corps would not grant permission to put a CAT in the river.

EMERGENCY AUTHORITY

All of this raises these policy questions. What is the criteria to determine an emergency situation? Who has the authority to make decisions in an emergency situation?

Is the Governor of the State empowered to declare an emergency and have the Corps respond? Or is there some other procedure that we need to follow?

Fortunately, when the rains came on the weekend, they were not sufficient to reach flooding levels. And the kinds of things that were done in response to General Williams stepping in and telling the folks on the ground to finally make some decision and stop bickering about turf took place, and there was no loss of life.

And I will not say minimal property damage, but at least the amount of property damage that could have been there was alleviated because of the actions General Williams took.

But I would hope that we could have a discussion here about this question of the criteria for an emergency and who has the authority to act in an emergency, because all of the budgetary authority in the world does not do you any good if you are in a situation like this, and you cannot get a decision.

So, General, I give you the floor now to respond. And you can tell us your side of this, because, as I say, you got into it personally, and the people of Utah are very grateful to you for your willingness

to get into it personally and make the kinds of command decisions that were made there.

PUBLIC LAW 84-99

General WILLIAMS. Sir, I thank you for the comments. I am not sure that I am due all those accolades, but I appreciate the feedback. And I will send that to the folks that did the work.

The Congress has granted the Corps of Engineers authority, which we have used over the years, Public Law 84-99.

That has in there some responsibilities for the Corps of Engineers and some authorities, and attached to it are some funds and the criteria in which we can use those moneys to prevent loss of life and property in flooding situations that you are referring to.

Basically, they are in three categories. Try to do something in advance of the potential catastrophe. You are authorized to do some things during the actual flood event itself, and then you are authorized to spend some money under that authority to go back and restore things to their original condition or elevations, for example, with the levies.

Within our organization, we have tried to decentralize so the quick decisions could be made. And with those responsibilities and authorities that go down to the district and to the division level, we have given them ceilings for funds which they have the authority to go out and expend within the criteria that is listed. If the expenditures are estimated to be beyond their authority, then it gets raised to the division and up to the Washington level.

Criteria for the advanced measures perhaps sometimes get fuzzy in the heat of battle in regards to what is it that we anticipate is going to happen, based on whatever information you know at that point in time.

When you are into the flood fight, it is a little bit easier to see what the real consequences are going to be.

And the same holds true after the flood fight and you are going back in and repairing things. So I would say the advanced measure part anticipation is one that generally generates some discussions.

The jurisdictional problem that you and I talked about previously reference the two districts should not have happened, and hopefully we have taken the correction to make sure it does not happen in the future.

DECLARATION OF A STATE OF EMERGENCY

In regards to the Governor and state of emergencies and so forth, normally what happens is our Corps of Engineer folks work very closely with the State emergency operation offices, or whatever title they may use, and it varies from State to State, but they are usually in close coordination with those people and have advised the State in regards to what it is that we need to allow us to utilize the Public Law 84-99.

In most cases, all it takes is a statement from the Governor that they have exceeded all their capabilities, both in manpower, equipment resources and/or funds, and are requesting assistance from the Federal Government.

It is in line with our Public Law 84-99. In many cases, a verbal request is followed up by a written letter for the record.

ENDANGERED SPECIES ACT ISSUES

Senator BENNETT. Well, I appreciate that, and I am glad to hear you say the jurisdictional fight presumably will not happen again, and we will get a quick decision rather than the very frustrating ongoing delay that we had prior to my calling you.

Can we talk about candidate species for a minute? It seems to me if a species has not gotten to the point where it is endangered, it probably should not enter into an emergency situation.

But here we had a circumstance where Army Corps of Engineers personnel were saying we can't allow you to do those kinds of things to alleviate the flood danger because of the Virgin spinedace, which isn't an endangered species yet but may be someday. And we want to be sure to take care of that.

That did not go down well with the people in the area who were worried about losing their homes. And I would like your comment about what the Corps' attitude toward candidate species and then endangered species is when you come to a circumstance where there seems to be a conflict between preserving habitat for those species, even though the habitat in this case was totally changed by virtue of the flood. Mother Nature did it.

The rights of a species, if you will, measured against the rights of human beings in an emergency situation, where there is serious property damage and the threat of loss of life here. Do you have a comment on that issue?

General WILLIAMS. I will make a comment, and then I will turn it over to either Dr. Zirschky or General Genega to make a comment as well.

I am a little bit fuzzy now in regards to the specifics of that particular case, but that really is not the point right now.

I would go back to the three phases of applying assistance in a flooding situation. When you are actually in the flood fight, then you are going out there to protect life and property. And the particular issues you are talking about are less of a consequence, I would say.

If you are trying to anticipate what might happen in advance, depending on whatever the particular issue is, in this case dealing with a species of one sort or another, then I can see where they would get into a discussion in regard to who ought to do what and when and so forth. Hopefully, we will be able to sort that out.

I would ask either Dr. Zirschky or General Genega if they want to comment on policies that we have.

Dr. ZIRSCHKY. I do not know about the specific case, but where it is not an imminent danger of loss of life, we would generally do a flow percent to have someone working in the stream bed, which requires us to then consult with the other agencies and get their views before we can act.

So there is the perception often in the public that we have the sole ability to act, when, in fact, we do not. We have to consult with other agencies.

For example, in restoration of a river where there is an endangered species, we use the biology of other agencies in our decision process. By law, they are the ones who give us the biological opinion. So a lot of the factors are not within our control.

Senator BENNETT. Well, I will give you the——

Senator DOMENICI. Ask him if he agrees.

Senator BENNETT. Pardon me?

Senator DOMENICI. Do you agree with that, General Genega?

General GENEGA. Yes, sir.

Senator BENNETT. I will give you the specific of a farmer in the St. George area, who said that the portion of the river that ran through his farm became silted up.

And he said, "If I don't go down and clean it out, I will start to lose some buildings, if there is indeed another flood."

And he was told by the Army Corps of Engineers, that he could not clean it out, even if it is on his own land, because there is a candidate species involved. The Corps insisted that he leave things the way they were.

He left them as they were, and the next flood came, and he lost some farm buildings as a result of his inability to clean it out.

It would have taken me 2 hours max to push the silt and material out of the river bed.

And, of course, it will take substantially longer now for him to repair his buildings at a great deal more cost and so on.

I am not a biologist, but I do not think that it would have made any difference, given the flood conditions and the tremendous disturbance that had occurred to the habitat by virtue of the natural occasion.

But he was told, "Oh, no. You have to leave it exactly as you found it," even though he said, "But this isn't the way it was 24 hours ago. I want to restore the habitat to the way it was 24 hours ago."

"You can't do that. You have to leave that exactly as it is."

Can you begin to understand the frustration of people dealing with Federal agents? They do not differentiate between which biologist or which agency or what it is. All they know is, it is the feds that are telling them they cannot do something that common sense makes very clear they should be doing.

Is there anything we can do about that, short of repealing the Endangered Species Act?

Dr. ZIRSCHKY. On that specific case, I think we definitely owe it to that person to investigate and find out why he was given that answer, and then get you the answer as to why he was given that answer.

All I can say is that the Army does its best to obey the law and execute it to the best of our abilities.

We do know there are problems in the regulatory program, and we are doing our best to fix what we can, those things within our power.

We have cut our old permits down from 200 to 60 in the last 8 months. We are making a very concerted effort to do what we can. I know that does not help the farmer in Utah at all.

WETLANDS DELINEATION

Senator BENNETT. Well, I will not prolong this, Mr. Chairman. I would just ask rhetorically: Is there any possibility of arriving at a single definition of a wetland that every agency would adhere to, a single definition of what is appropriate with respect to habitat

that every agency can adhere to, or are we going to live forever with overlapping jurisdictions on all of these very troubling questions?

Dr. ZIRSCHKY. With respect to wetlands, we currently have one definition that is in the Corps' 1987 manual. And it was a rather controversial process to get back to using the 1987 manual.

Currently, the National Academy of Sciences is trying to determine if there is a more scientific way to define a wetland.

With respect to habitat, that is an extremely controversial issue that affects not only Utah, but Senator Burns and others on the Missouri River. I know Senator Domenici has some problems with their equivalent of the spotted owl in New Mexico.

I would prefer to leave the habitat issue to those agencies whose responsibility it is.

Senator BENNETT. OK.

Senator DOMENICI. But the Senator raises the point that you cannot answer.

Dr. ZIRSCHKY. No, sir.

Senator DOMENICI. Obviously, there are a number of definitions, and the Corps' manual is their criteria. We ought to get to that point somehow with an appropriate administration official.

Senator BENNETT. I think we should. I will not prolong this, but we have a lot of wetland stories in Utah.

He is not here to say it, so I will quote from the best of my memory the former ranking member of the Energy and Natural Resources Committee on which Senator Domenici and I served together.

That Senator said, "For many people in this administration, if your dog has a favorite tree, that's a wetland."

Senator DOMENICI. You did not look at me like I said that.

Senator BENNETT. No, Senator Wallop.

Dr. ZIRSCHKY. If you have any specific case that any of the members of this committee would like us to look into and try and resolve, that is what we are here for.

Senator BENNETT. Thank you.

Senator DOMENICI. Thank you very much, Mr. Secretary.

Senator Burns.

Senator BURNS. That is almost saying I work for the Government. I am here to help you. We just went through that with the Forest Service awhile ago in their program for private timberland.

It seems like the private people get along just fine, and we cannot do what we want to do.

Are you going to be the new superintendent up at West Point?

General WILLIAMS. No, sir.

Senator BURNS. Oh, I thought you were. I thought you said something about that.

General WILLIAMS. I am going to go up and welcome in 98 new cadets into the Corps of Engineers.

Senator BURNS. Oh, OK. I have a couple of questions. Wetlands just drive us crazy, too, and I did not know there was any place in Utah that had a problem with wetlands.

Senator BENNETT. We are in the desert.

Senator BURNS. Yes; and flooding. I cannot imagine floods in Utah either, but—no, I am just being a little funny there.

Anyway, I have a couple of questions. The Corps of Engineers, I guess I have a couple of isolated things that I would like to get some kind of a commitment on before I commit my vote to this budget and this appropriation.

FORT PECK DAM, BANK EROSION

We have a situation between Fort Peck Dam and downstream with erosion. And we keep having farmland, bottom land, in the State of Montana fall into that river. That river just keeps eating into it.

We have always been told that there are different priorities. However, if I was a farmer, and I had a situation there where that land costs anywhere from \$1,000 to \$2,000 an acre and I see about five to six acres go in that river a year, I think we have to deal with that some way or other.

I would just like your response on that and what we can do about it, because it is a troubling thing for me.

Dr. ZIRSCHKY. Yes, Senator. The committee has appropriated the money for that, I believe, a number of years ago, and we agreed earlier this year to go ahead and try and help solve the problem.

But rather than do it initially in one big effort, we decided to try two pilot projects to see what would work, to make sure we spent the money on something that would actually help protect the farmer.

So we are going to try one of those in Montana and one in North Dakota, monitor the costs, see how cost effective it was, and then if we got good results, expand to do more work.

Senator BURNS. Well, I guess what I am getting at here is if we appropriated the money and designated the money for that area, are you telling me then that you are going to make the decision that well, that really does not work, so we are not going to do it?

Dr. ZIRSCHKY. No, sir; I cannot speak for the previous administration not wanting to spend the money, but for this one—

Senator BURNS. I had the same complaint, by the way, with them.

Dr. ZIRSCHKY. We have decided that we are going to—

Senator BURNS. I am not picking on anybody.

Dr. ZIRSCHKY. We are going to execute the committee's desires. What we want to test is to find the means that work best and use the test to find out which way protects their land the best and then go forward.

WATER SUPPLY SYSTEM

Senator BURNS. OK. Now, I have one water system and a water system project in the same area, by the way. It is the delivery of water to the community that has grown up around Fort Peck Dam and the water needs at Fort Peck Indian Reservation.

I just want a commitment from the Corps that we can sit down and we can work out that problem and see if we cannot come up with some answers on how we best do that.

If I could get some kind of commitment from you on that part of this thing, why, we would sure work with you and try to get something accomplished up there, because we have to improve that water delivery system up there some way or other.

And I feel like that—you see, in Pick Sloan, we did not get what we were promised.

So if we are not going to get those, I think we have a little work to do that I think is due to the State of Montana because we covered a lot of country up there, you know, and we have never been justly compensated or promises kept as far as power and a lot of other things. And we would kind of like to get those things taken care of.

So if I can get some kind of a commitment and we sit down, let's go over those projects. Let's get them done. Let's work on them together.

I know there is nothing you can do with the Endangered Species Act. We are going to have to change the act, and I think that is going to happen, too.

Your wetlands—I mean, you have some people down there that do not know the difference between sic them and come here when it comes to designating wetlands.

I can tell you that right now. You do not have too many farm kids out there that know the difference. So bring them down, and we will educate them a little bit for you, your new engineers.

But other than that, that is just about all I have. Thank you.

Senator DOMENICI. Thank you very much, Senator.

I am going to put a series of questions in the record for you to answer, you or the generals.

SOUTHEAST FEDERAL CENTER

I hope you take a real close look at the Southeast Federal Center in terms of downsizing. Is it possible that we can look around Government and see if there are other facilities or ways to house the Corps.

It is very hard to get any of these going at this point. But you do not have to answer that now, Mr. Secretary.

Dr. ZIRSCHKY. Yes, I do. The Corps has proposed moving to the Southeast Federal Center. I do not believe that is within our purview. We will have to work with GSA on that one.

Senator DOMENICI. Well, obviously, GSA is not going to be over there operating on their own, if the Corps is not looking for some facilities. I am just laying a predicate that maybe you ought to take a serious look as to whether you can get along without it.

Senator Kerrey, I was just going to finish up a few New Mexico questions with the Corps people and then go to the Bureau. But I will let you go right after me, is that satisfactory?

Senator KERREY. Right.

Senator DOMENICI. Thank you very much.

I have four or five New Mexico questions, including a series on the Acequias Program. Now, maybe you all do not pronounce it that way, because it is a hard word. But that is the right way to say it.

I would like very much for you to respond as to whether there could be a couple of changes in the way the assessments are done, because the up front assessment is causing some difficulty.

CITY OF CARLSBAD, NM

But I have a more important issue. In the city of Carlsbad, NM, we have a serious problem evolving. It has to do with the floodplain and the National Flood Insurance Program. Sometime back—I do not remember the exact date, but perhaps the Bureau of Reclamation director might remember—a Bureau of Reclamation flood protection dam was built in the county of Eddy to protect the city of Carlsbad. I think it was the last major dam and flood protection project in the county.

Now as I understand it, the Corps of Engineers is supposed to provide the data for FEMA to see what the floodplain is. And they did the mapping just back in 1977. They issued a map outlining which parts of the city were in the so-called special flood hazard area.

Now somehow or another, the Corps has provided new data General, to redo a special flood hazardous plain mapping, and the flood hazard area has doubled, doubled. And I believe in the meantime, we had this flood control project built.

Now, we were all aware, when we built the project, that it would not do the whole job. In our part of the country, flooding does not always come from rivers. Some of it comes from arroyos, as you know, dry rivers. And when they run, they run big, and they flood everything out. Then in about 1 month, there is no more river, but they damaged everything. There were two of them, and this project picked up one of them.

But I wonder if you could go back now and take a look and see if you cannot work with the people of Carlsbad. The city had had to go out and hire some experts—they did not spend a lot of money, but, you know, a couple hundred thousand is a lot for a city—to see whether the Corps' doubling of this floodplain is reasonable or not in light of the construction of the flood control project being built—and the area still doubles.

I wonder if you could see what your people are doing. I am not asking for any—you know, to skimp. I am just thinking that we have to get this resolved.

We have to find out where we are in terms of what is subject to flooding, so the city can propose to its people what are they going to do.

You seemed about to comment as if you knew something about this, Mr. Secretary.

Dr. ZIRSCHKY. I think we have two programs we could work with Carlsbad on, the planning assistance to State and local governments and our floodplain management program. Both programs we could work with your community on.

Senator DOMENICI. The problem is that this is now on appeal in the process, in FEMA's process, and we need some special help on how we are going to determine something that is more reasonable than the doubling of the floodplain so we can get this thing settled, or so the public can decide what they want to do. And I would just ask that you take a serious look at it.

Dr. ZIRSCHKY. Yes, sir.

Senator DOMENICI. I would hope there is not the situation that the Corps looking at the Bureau of Reclamation and wondering

whether they did their job right and saying, had the Corps have done it, they would have done better.

I just hope there is none of that going on. I am quite sure you all would not, under any circumstance, allow that to happen. But I am not sure about that when people get out there and do their work. I cannot say it any better than that.

OK. I have other questions. They will be submitted.

CONTINUING AUTHORITIES PROGRAM

Senator Kerrey, do you have some questions?

Senator KERREY. I do. Thank you, Mr. Chairman.

I do not know, Dr. Zirschky, if you or General Williams should answer this, so I will just sort of throw it out on the table.

In talking to the Omaha division of the Corps, they identified a couple of new policies that could have pretty serious impacts on smaller projects in rural areas, in particular.

One of the most important new policies affects projects falling under continuing authorities programs. For projects less than \$5 million, they are going to be discontinued.

That is going to have a big impact on a lot of smaller projects in the State. And I am just curious what the impetus was for this. Is this entirely budget driven, this decision?

Dr. ZIRSCHKY. Yes, Senator. The administration announced that they were going to phase out the Continuing Authorities Program beginning in 1997. So, if we cannot get a project ready for construction before then, we are not going to start on that project.

Senator KERREY. When you say "cannot get a project ready" by then—

Dr. ZIRSCHKY. To get it through planning, real estate acquisition, design and ready for construction. The administration has decided to terminate that program.

Senator KERREY. I do not understand why. What is the logic?

Dr. ZIRSCHKY. To help save money.

Senator KERREY. So you are basically going to shut off all new projects, even though we have commitments made. What is the \$5 million figure? Why did you pick \$5 million?

Dr. ZIRSCHKY. I am not familiar with the \$5 million figure. Some of our continuing authorities projects have a statutory limit of only \$5 million.

Senator KERREY. The information that I have says that it is going to be discontinued unless the Corps has already invested over \$5 million in the project. I see people behind you shaking their heads no.

General GENEVA. No, sir; there is a \$5 million limitation on the project cost in the section 205 Continuing Authorities Program, which are flood control projects.

That is a \$5 million cap, statutory cap, on the Federal cost of each project, the Federal share. That is the only \$5 million that rings a bell with us.

Senator KERREY. OK. Have you done a calculation of the money that has been invested in the planning for these projects? I mean, when OMB made this—I assume this is coming from OMB.

Dr. ZIRSCHKY. Not specifically for the Continuing Authorities Program, how much money has been invested to date in those projects. No, sir.

Senator KERREY. And what is the impact on this country 10 years from now from this effort, in your judgment? I understand the short-term decision is being driven by budget. Indeed, I am tempted to launch into my entitlement speech.

Senator DOMENICI. I will rule you out of order. [Laughter.]

Senator KERREY. But it is true. What is your judgment of the impact on the country of discontinuing these kinds of efforts 10 years from now? What does it look like? I mean, it is an arbitrary—

Dr. ZIRSCHKY. I cannot give you a precise answer on that.

Senator KERREY. It is not a planning decision that you are making. It is entirely budget driven, and it has nothing to do with me. It has nothing to do with the future. It has everything to do with current budget requirements.

Dr. ZIRSCHKY. Yes, Senator. It is a budget decision.

Senator KERREY. So do you acknowledge that it might be shorting an investment that needs to be made?

Dr. ZIRSCHKY. That is possible, yes, Senator.

NEW FLOOD CONTROL POLICY

Senator KERREY. You have another proposed policy that says the Corps is only going to fund flood projects in which over 50 percent of the flood water—I presume this may have been raised earlier by the chairman.

Senator DOMENICI. Yes, sir.

Senator KERREY. Did you get a satisfactory answer?

Dr. ZIRSCHKY. That policy is under review.

Senator DOMENICI. We decided we did not agree.

Senator KERREY. The proposed policy basically says that any State that is on the Continental Divide, about 20 States, lose funding. Is that how that works?

Dr. ZIRSCHKY. Yes, sir; as well as California, Texas, and Florida. But the—

Senator KERREY. Have you counted up the electoral votes out there in that part of the woods?

Dr. ZIRSCHKY. The administration has decided to review that policy, Senator. [Laughter.]

Senator KERREY. Thank God for California.

Senator DOMENICI. That is exactly right. I asked him in his written questions how many are in California if they do this.

Senator KERREY. Are these policy changes going to affect other missions of the Corps?

Dr. ZIRSCHKY. Yes, sir; there are a number of policies that have been proposed. One is to terminate, for example, the—

ENVIRONMENTAL PROJECTS

Senator KERREY. And environmental projects and projects to protect areas for economic development, as well? Are those going to be affected by this decision?

Dr. ZIRSCHKY. Some of them will. Those that the Federal Government has some responsibility for are continuing, the salmon res-

toration effort, for example, in the Pacific Northwest, the Everglades restoration in Florida.

Senator KERREY. Do you have inside the Corps studies or some kind of back-of-the-envelope estimate of what the investments that we made, let's say, in the decade of the fifties had done for the standard of living of those areas where the investments were made?

Dr. ZIRSCHKY. No, Senator.

Senator KERREY. Is there a presumption that it increases our standard of living, that these investments are good for the economy?

Dr. ZIRSCHKY. I cannot speak for projects in the fifties, because we evaluate projects differently now.

Senator KERREY. Sixties, seventies?

Dr. ZIRSCHKY. Most of our projects now require a positive benefit cost ratio, which means there are more national benefits. For every dollar, the Federal Government spends to build a project, you will get more than \$1 back in national benefits.

We do have some historic data that every dollar invested in flood protection has saved \$8 through time.

Senator KERREY. But here, your policy changes have nothing to do with cost benefit.

Dr. ZIRSCHKY. No, Senator.

Senator KERREY. There is no cost benefit analysis in the decision to terminate projects that have not been funded up to a certain level starting in 1997. That is entirely a decision in this Government.

We are now saying even if the investment is justified on a benefit basis, even if you can demonstrate that there is a benefit where the standard of living is going to be higher in the country as a consequence of this investment, we are not going to make it because the current budget situation does not permit it.

Dr. ZIRSCHKY. That is correct.

Senator KERREY. So what do we do? Would you recommend that we put an asterisk on our speeches when we go out and talk about investing in the future? How would you recommend that we approach our citizens the next time we give our stump speech?

Dr. ZIRSCHKY. I could not advise you on that.

Senator DOMENICI. Senator, that is a pretty tough question to ask. Why do you not ask the President? He is the leader of your party.

Senator KERREY. Well, he is the leader of the country, actually. And I, unfortunately, see——

Senator DOMENICI. Oh, pardon me. The country, you are right.

Senator KERREY [continuing]. Not just the President being forced into this dynamic, but increasingly I see Republicans who are in control of the Congress. I noted with great interest Speaker Gingrich's speech here last Friday to the Seniors' Coalition.

I mean, it seems to me we are having a difficult time, politicians are. Indeed, I constantly see polls where people are prepared to make investments, and they are prepared to make decisions that will balance the budget and increase national savings up until the time that we get to identifying the biggest items in the budget that are creating the deficit in the first place. So——

Senator DOMENICI. Here comes the speech.

Senator KERREY. Well, I am just—

Senator DOMENICI. You are sounding very good so far.

Senator KERREY. I mean, I think that we, people like myself—I am 51 years old, and I have benefited enormously from investments that were made in the fifties and the sixties and the seventies.

It seems to me that I ought to tell my kids the truth, that I am basically shorting them, and I am not cutting back on core projects as a result of, you know, real hard-headed cost benefit analysis. I just decided for other reasons that I am going to go where the votes are.

It seems to me that that is an honest evaluation of what is going on in this particular count.

MISSOURI RIVER MASTER PLAN

Can you tell me what the status is, where we are right now with the proposed alternative for the Missouri River master manual?

Dr. ZIRSCHKY. Yes, Senator. We are currently having some discussions with other Federal agencies on how we can resolve some differences that we have with them and coming up with a plan of action to proceed.

Senator KERREY. Could you repeat that?

Dr. ZIRSCHKY. We are currently having discussions with other agencies on their views about the master manual and trying to come up with a consensus on how we proceed.

Senator KERREY. So what does that mean exactly? I do that, too. We are having discussions and—where does that lead? Is there an end point?

Dr. ZIRSCHKY. We are optimistic that, hopefully, in May we will reach a consensus.

Senator KERREY. He could be the director of Central Intelligence, I am telling you. [Laughter.]

So you are optimistic that by—

Dr. ZIRSCHKY. Well, we had hoped to, frankly, Senator, by April have this resolved, but we still have a disagreement within the executive branch on how to proceed.

Senator KERREY. Can you describe the nature of that disagreement?

Dr. ZIRSCHKY. It focuses now on the spring rise and the need to have a spring rise to help the species in the river—increasing the water flow in the river in the springtime, which signals to the fish that it is time to spawn.

Senator KERREY. And can you describe to me who—where does the disagreement lie? Who holds one position and who holds another?

Dr. ZIRSCHKY. I have not spoken to some of the other agencies yet. For example, I will be meeting with EPA tomorrow morning. But it is our understanding that the EPA and the Fish and Wildlife Service support the spring rise.

The Department of Agriculture and Transportation do not. We are trying to use the Council of Environmental Quality to help us resolve those differences.

Senator KERREY. Has the EPA indicated that there may be some need to change the Endangered Species Act in order to do what the majority of the basin want to do?

Have they indicated that perhaps they are listening to citizens in the basin concerned about this whole thing being driven by the Endangered Species Act?

Dr. ZIRSCHKY. I will speak to them tomorrow, Senator.

Senator KERREY. I would appreciate it. I mean, I am not for eliminating the Endangered Species Act, but I will sit here and predict that it is going to happen if we do not start making reasonable changes when the people themselves acknowledge that they are concerned about species as well.

We do not want to be led around by the nose by the law. If there is a reasonable change in the law that can be made so that the will of the people can be expressed, it seems that we ought to have that agency that is responsible, in this case EPA, identify the reasonable change, and let's make it.

Senator DOMENICI. Would you like me to call the EPA up next time?

Senator KERREY. No.

Senator DOMENICI. Senator, do you have any additional questions?

Senator JOHNSTON. No, thank you.

PREPARED STATEMENT

Senator DOMENICI. Now, Senator Bumpers has a statement he'd like to be placed in the record.

Without objection, it will be made part of the record.

[The statement follows:]

PREPARED STATEMENT OF SENATOR DALE BUMPERS

Mr. Chairman: I appreciate the courtesy of the subcommittee in allowing me the opportunity to offer a statement on behalf of representatives of my state who, in the past, have appeared here to offer testimony of water development projects important to Arkansas, our region, and the entire nation.

When I served as Governor of the State of Arkansas, one of the duties for which I had the privilege to perform was to address the dedication of McClellan-Kerr Navigation System in the early 1970's. That particular ceremony was held at the uppermost reach of the navigation system near Tulsa, Oklahoma, at a site known as the Port of Catoosa. Recently, I was shown an aerial photograph of that port and I was amazed by the tremendous growth in industrial and transportation services that has been built around the port. This serves as sound evidence of the economic impact our federal investment has made and continues to make. I was also pleased to learn that shippers from many of the surrounding states make use of the system due to the economic efficiencies it affords.

In addition to the importance this system holds for Oklahoma, Kansas, Texas, and other states, I know first hand what it has meant for Arkansas. The number of jobs it has created number in the thousands and the amount of private sector investment that has been leveraged reaches into the billions of dollars. For reasons important to my state, the region, and the nation, this system must not be allowed to fail.

The problems with the McClellan-Kerr have been brought to this subcommittee's attention over the past several years. It is at risk due to changes occurring in the Mississippi River channel that in the near term will make access into the McClellan-Kerr impossible. Already, this problem is affecting decisions by shippers and those involved in industrial development in a negative manner due to the growing suspect of system integrity. The remedy to this problem, as recognized by the U.S. Army Corps of Engineers, is construction of a lock and dam at Montgomery Point.

This subcommittee has provided appropriations and report language over the past few years in support of this project. In fact, last year report language was included

that strongly encouraged the Administration to submit a construction start request for fiscal year 1996. I understand that the fiscal year 1996 budget request does include funding for Montgomery Point but does not call for a formal construction start. I have been working with the Corps of Engineers and the Office of Management and Budget on this issue and, specifically, I have brought to their attention matters relating to the necessity of the project and the statutory grounds by which reliance of the Inland Waterways Trust Fund need not apply in this case. I have been encouraged that the Corps has undertaken activities such as land acquisition and construction engineering and design, which are technically construction activities, regardless of a formal declaration of construction.

I am aware that a \$2 million carryover will remain in the McClellan-Kerr Construction general account going into fiscal year 1996. I hope the subcommittee will strongly consider the use of these funds to help move this important project forward.

Mr. Chairman, another issue of concern to the State of Arkansas is the continued development of the Red River Valley. This is a subject on which the distinguished Ranking Member of this Subcommittee has spoken at great length.

The floods we have had in the past few years have caused unprecedented damage to several areas in Arkansas, Louisiana, Texas and Oklahoma. In Arkansas, for example, revetments, bank realignments, and other major facilities along the Red River, which were constructed at federal cost, have been completely destroyed and threaten continued bank stabilization and flood control protection. Clearly, this is a Federal investment that must be preserved and continued erosion will greatly increase the ultimate cost of stabilization and flood control.

I know that the chairman and the members of the subcommittee are aware of the crucial need for added funding to meet protection needs along the Red River and I would hope that strong consideration will be given to providing desperately needed Federal assistance.

SUBMITTED QUESTIONS

Senator DOMENICI. Well, we will submit the questions in writing. We thank you very much for your testimony. Let me just say, as we work on this budget and try to come up with our appropriation bill for fiscal year 1996 in the next several months—and it will be at least that long—I look forward to working with you.

Senator Johnston and I will get advice from you. We seek that, as we try to put the budget together.

Dr. ZIRSCHKY. Thank you.

General WILLIAMS. Thank you, Mr. Chairman.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

PROPOSED POLICY CHANGES

Senator DOMENICI. a. The Administration's budget indicates that significant changes in Federal participation in water resource development will be proposed. How does the Administration plan to proceed with the implementation of these changes?

Dr. ZIRSCHKY. The Administration has proposed significant changes to the Corps of Engineers missions to focus on projects of broad national scope and significance including commercial harbors and inland navigation, emergency response and flood control projects that meet more stringent criteria than in the past. The Administration is currently examining alternatives to the proposed flood control criteria. When we are satisfied that we have thoroughly explored alternatives and appropriately considered input from our non-Federal partners and others, we will submit proposed legislative language to the authorizing committees having jurisdiction over the Corps Civil Works Program.

Senator DOMENICI. Does the Administration plan to implement any portion of the proposed change before authorizing committees have had a chance to review and address them in legislation?

Dr. ZIRSCHKY. We are anxious to work with Congress on means of achieving the needed budgetary savings for FY96. Nevertheless, in the President's FY96 budget request, the Administration has not included funds for certain civil works programs or elements of programs not meeting our proposed new policies. Specifically, no funds have been requested for the Aquatic Plant Control Program or for new studies and projects for shore protection or for flood control that do not meet criteria proposed in the FY96 budget. I should note, however, that we intend to complete the currently funded phase of ongoing shore protection and flood control work.

b. Senator DOMENICI. Do you plan to submit a comprehensive proposal to the appropriate authorizing committee for consideration before proceeding?

Dr. ZIRSCHKY. The Administration intends to submit legislation to the appropriate authorizing committees which, when enacted, would redefine Corps of Engineers missions by shifting responsibility for many water resources projects and programs to the appropriate non-Federal level of government, namely, the States and local communities. The basic idea for reinventing the civil works mission of the Corps is to shift from a program financed largely by Federal taxpayers to one focusing more clearly on nationally significant water resource problems, with direct beneficiaries contributing more of the costs. Absent action by Congress, we will proceed to the extent that we would not budget for studies, Reconstruction, Engineering and Design, and construction of those projects that do not meet our new criteria for Federal participation.

c. Senator DOMENICI. What portions of your plan can be implemented without authorizing legislation? What portions need to be changed by legislation?

Dr. ZIRSCHKY. The Administration will submit proposed authorizing legislation for each of our proposed new policies. Although we could not implement certain portions of the plan that require enactment, such as changes to project cost sharing, we would in the interim not budget for activities that are contrary to our proposed new policies.

(2) Senator DOMENICI. a. Can you tell the Committee how the expected savings of \$1.0 billion will be achieved? How will the total savings be applied to the various Civil Works appropriation accounts?

Dr. ZIRSCHKY. The estimated savings of \$960 million to be achieved by the policies proposed by the budget involves five of the Civil Works program appropriation accounts. I will provide a table showing these amounts.

(The information follows)

APPROPRIATION TITLE	ESTIMATED SAVINGS FY 1996 -2000
GENERAL INVESTIGATIONS	\$218,000,000
CONSTRUCTION, GENERAL	422,000,000
OPERATION AND MAINTENANCE, GENERAL	195,000,000
REGULATORY PROGRAM	65,000,000
GENERAL EXPENSES	60,000,000
TOTAL	\$960,000,000

b. What is the expected impact on both personnel and organizational structure?

Senator DOMENICI. What would be the programmatic impact if these policy changes are not enacted yet the Corps was still required to find \$1.0 billion in savings?

Dr. ZIRSCHKY. The savings would have to be achieved by not undertaking any new starts, by stretching out the schedules of ongoing projects, and by reducing the level of maintenance on existing projects.

SENATOR DOMENICI. Can you tell the Committee how the expected savings of \$1.0 billion will be achieved? What is the expected impact on personnel and organizational structure

Dr. ZIRSCHKY. The savings of \$960 million over the next five years, as proposed in the FY 1996 budget, would be achieved by phasing out Federal participation in local flood protection and coastal storm damage prevention projects, by turning over small harbors and reservoirs to state and local governments for future operations and maintenance, and by increasing state involvement in the regulatory program.

Currently, the Corps plans to achieve a 12%, or approximately 3,400 FTE, workforce reduction below its FY 1993 base of 29,194 FTE by FY 1999. Overall, we can estimate that savings of \$1 billion would result in a reduction of an additional 2,500-3,000 FTE. We can also project that the planning and engineering capability in many Districts would probably be severely impacted, and that a number of Districts would transition to primarily operations and maintenance activities. Since project funds provide the sole source of funds for District offices it is not possible to project with accuracy how any District would be impacted until we know which projects will be reduced or eliminated.

Mr. DOMENICI. What would be the programmatic impact if these policy changes are not enacted yet the Corps was still required to find \$1.0 billion in savings?

Dr. ZIRSCHKY. The savings would have to be achieved by not undertaking any new starts, by stretching out the schedules of ongoing projects, and by reducing the level of maintenance on existing projects.

NATIONAL SIGNIFICANT PROJECT

MR. DOMENICI. What are the criteria for determining what is a national significant project of program and what is not? Can you please give the committee some examples of what a national significant project or program and what is not?

DR. ZIRSCHKY. The FY 96 budget was developed using three criteria for Federal involvement in flood control projects; 1) more than 50 percent of the flood waters come from outside the state, 2) the benefit to cost ratio of the project must be at least 2.0, and 3) the non-Federal sponsor must be willing and able to pay 75 percent of the project cost. These criteria are currently under review.

Commercial navigation projects that contribute to the Harbor Maintenance Trust Fund are also nationally significant.

Under these criteria a project like the Washington D.C. and Vicinity project, which would provide protection from the Potomac River and is currently in the preconstruction engineering and design stage, is nationally significant, but a project like Holes Creek, West Carrollton, Ohio which would provide protection from a stream entirely in Ohio, is not.

PROJECTS AFFECTED BY THE NEW POLICY

Senator DOMENICI. How many projects currently underway will be affected by this new policy change? Provide a list of those projects for the record along with a list of those projects that received funding in FY 95 and are not included in the 1996 budget because of the proposed policy changes. What percentage of your current program, in terms of dollars and projects, will be eliminated?

Dr. ZIRSCHKY. The proposed policy change would affect 46 General Investigations studies and projects which are currently underway. A list of those studies and projects is provided below. The list of studies and projects affected is divided into three groups: 25 studies and projects that received funding in FY 95, 4 studies and projects that did not receive funding in FY 95, and 17 studies and projects that are included in the FY 96 budget to complete the phase of study currently underway prior to termination.

The proposed policy eliminated 7% of the dollars and 14% of the projects, from the current program.

(The information follows:)

STUDIES AND PROJECTS AFFECTED BY THE NEW POLICY

RECEIVED FUNDING IN FY 95

=====

ARKANSAS RIVER, TUCKER CREEK, AR

CITY OF HUNTINGTON BEACH, ORANGE COUNTY, CA

KAWEAH RIVER, CA

NORTHERN LOS ANGELES COUNTY, CA

SACRAMENTO - SAN JOAQUIN DELTA, WESTERN DELTA ISLANDS, CA

SAN CLEMENTE CREEK, CA

SAN FRANCISCO COUNTY, OCEAN BEACH, CA

SAN JOAQUIN RIVER BASIN, FIREBAUGH AND MENDOTA, CA

SILVER STRAND SHORELINE, CORONADO, CA

UPPER PENITENCIA CREEK, CA

MANITOU SPRINGS, CO

COAST OF FLORIDA EROSION & STORM PROTECTION, FL

UPPER TIPPECANOE RIVER BASIN, IN

JACKSON METROPOLITAN AREA, MS

BARNEGAT INLET TO LITTLE EGG INLET, NJ

ESPANOLA VALLEY, RIO GRANDE & TRIBUTARIES, NM

LOWER TRUCKEE RIVER, NV

ADDISON, NY

BIRD CREEK BASIN, OK

SCHYULKILL RIVER BASIN, SCHUYLKILL HAVEN AREA, PA

RIO NIGUA AT SALINAS, PR

CHARLESTON STORM DAMAGE REDUCTION, SC

WOLF RIVER, MEMPHIS, TN (MR&T)

GRAHAM, TX (BRAZOS RIVER BASIN)

CHESAPEAKE BAY SHORELINE, HAMPTON, VA

COUNT = 25

STUDIES AND PROJECTS AFFECTED BY THE NEW POLICY
(CONTINUED)

DID NOT RECEIVE FUNDING IN FY 95

=====

SAN JOAQUIN RIVER BASIN, TULE RIVER, CA
BREVOORT LEVEE, IN
COLUMBIA SLOUGH, OR
OCEANA, WV

COUNT = 4

INCLUDED IN FY 96 BUDGET TO COMPLETE CURRENT PHASE

=====

GILA RIVER & TRIBUTARIES, N SCOTTSDALE DRAINAGE AREA, AZ
GILA RIVER, TORTOLITA DRAINAGE AREA, AZ

CITY OF ENCINITAS, CA
N CA STREAMS, CACHE CREEK ENVIRONMENTAL RESTORATION, CA
SACRAMENTO – SAN JOAQUIN DELTA, LITTLE HOLLAND TRACT, CA
SAN ANTONIO CREEK, CA
SANTA BARBARA COUNTY STREAMS, CA

LAFAYETTE PARISH, LA

HANCOCK, HARRISON AND JACKSON COUNTIES, MS

SOUTH RIVER, RARITAN RIVER BASIN, NJ

ROCKY ARROYO/DARK CANYON, PECOS RIVER AND TRIBUTARIES, NM

NORTH SHORE OF LONG ISLAND, NY
SOUTH SHORE OF STATEN ISLAND, NY

JUNIATA RIVER BASIN, PA
MILTON, PA

PLAINVIEW, BRAZOS RIVER BASIN, TX

CHEAT RIVER BASIN, WV

COUNT= 17

EMERGENCY RESPONSE

Senator DOMENICI. What will be the role of the Federal government in emergency response and management when Federal involvement is based on 50% of the flood waters coming from outside the state?

For example, in the recent disastrous flooding in California I would think that a majority of the flood water was intrastate. Does the Administration contemplate any changes in how the Corps, FEMA, or other Federal agency would respond to emergencies of this type?

Dr. ZIRSCHKY. I can only speak to the Corps response in emergencies. The policies proposed with the FY 96 budget would not change in any way the response of the Corps to flooding or other emergencies.

CONTINUING AUTHORITIES PROGRAMS

Senator DOMENICI. Why, in light of the proposed policy changes in the Corp's civil works program, are sizable increases in the small continuing authorities programs, being requested in the FY 1996 budget?

Dr. ZIRSCHKY. The FY 1996 request of \$41 million for these programs is larger than the FY 1995 appropriation of \$27.1 million, but very close to the FY 1994 appropriation of \$40.1 million. The Corps FY 1995 request was based on a policy of no new starts for studies and construction. The FY 1995 appropriation allowed new starts, but did not increase the requested amount. The FY 1994 appropriation and FY 96 request both include funding for new starts. Under our phase-out procedure, we will approve new construction starts through Fiscal Year 1996. Any projects that are not scheduled to reach construction approval by 30 September 1996 will be terminated at the conclusion of the current phase.

DETERMINATION OF FLOOD WATERS

MR. DOMENICI. How will you make the determination that 1/2 of the flood water originates from outside of a particular State?

DR. ZIRSCHKY. If this criteria remains after the ongoing review, the Corps will develop standard procedures that will be use in their normal hydrologic studies done as a part of all project studies.

MR. DOMENICI. I understand that you have made the determination that environmental projects are national in scope and will continue to have Federal participation and a higher priority than flood protection. How did you arrive at this determination?

What is the justification for Federal participation in an environmental project entirely within a state?

DR. ZIRSCHKY. The environmental restoration projects that we propose to fund are fundamentally in response to environmental degradation caused at least in part by earlier Federal projects, or where modification of an existing Federal project offers the most cost-effective means of restoring the environment. Such restoration has been accorded a high priority in our program than it has received in the past. Size and location of the restoration requirement have no bearing on this.

FISCAL YEAR 1996 ENVIRONMENTAL PROJECTS AND PROGRAMS

Senator DOMENICI. Please provide a list of the environmental projects and programs included in the FY 1996 budget request. Include a brief description of the work, how much is included in the FY 1996 budget, and if it is a single State or multi-State project.

Dr. ZIRSCHKY. I will provide the requested material for the record.

U. S. ARMY CORPS OF ENGINEERS - CIVIL WORKS
ENVIRONMENTAL PROGRAM DEFINITIONS

Definitions of Categories

1. **Mitigation**. Measures authorized by Congress or approved by headquarters to compensate for ecological resources unavoidably affected by a Corps project or activity. Includes stand alone projects, work undertaken concurrently with project construction; and operation, maintenance and management of completed mitigation measures.
2. **Restoration**. Measures undertaken to return a degraded ecosystem's functions and values, including its hydrology, plant and animal communities, and/or portions thereof, to a less degraded ecological condition. The goal of restoration is to return the environmental study area to as near a natural condition as is justified and technically feasible. Priority will be given to restoration where a Corps project contributed to the degradation of the ecosystem and to modifications of existing Corps projects when such modifications are the most cost effective means of restoring the ecological resources. [Note: HTRW cleanup is now a separate category.]
3. **Protection**. Measures undertaken to protect and preserve an ecosystem's functions and values against future degradation as part of the operation, maintenance and management of a Corps project (e.g., natural resources management, environmental dredging studies, etc.).
4. **Cleanup**. Measures undertaken to achieve compliance with Federal or State laws or regulations to clean up hazardous, toxic and radioactive wastes (HTRW) on lands associated with Corps projects in planning or under construction, or on lands managed by the Corps (e.g., site studies, Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) remedial actions, Resource Conservation and Recovery Act (RCRA) corrective actions, and cleanups related to leaking underground storage tanks). Includes items reported under OMB Circular A-106.
5. **Compliance**. Measures undertaken to achieve or sustain compliance with Federal or State laws or regulations under Clean Water Act, Clean Air Act, and other pollution control laws. Includes items reported under OMB Circular A-106. [Note: Measures to comply with the National Environmental Policy Act and the Endangered Species Act should now be reported along with other planning and construction costs under Mitigation or Restoration, or as appropriate.]
6. **Prevention**. Measures undertaken to implement Executive Order 12856, Federal Compliance With Right to Know Laws and Pollution Prevention Requirements.

U.S. ARMY CORPS OF ENGINEERS
FY 1996 ENVIRONMENTAL PROGRAMS
(Dollars in Thousands)

STATE	PROJECT NAME	TOTAL
CLEANUP		
GENERAL INVESTIGATIONS		
LA	Mississippi River - Gulf Outlet Bank Erosion, LA	40
CONSTRUCTION, GENERAL		
VA	James R. Olin Flood Control Project, VA	520
WV	Winfield Locks and Dam, WV	12,000
MR&T		
MS	Yazoo Basin - Demonstration Erosion Control, MS	98
TOTAL - CLEANUP		12,658

STATE	PROJECT NAME	TOTAL
<u>COMPLIANCE</u>		
<u>GENERAL INVESTIGATIONS</u>		
DE	Delaware River Main Channel Deepening, DE, NJ, & PA	120
NJ	Brigantine Inlet to Great Egg Harbor Inlet, NJ	10
NJ	Great Egg Inlet to Townsend Inlet, NJ	15
NJ	Manasquan Inlet to Barnegat Inlet, NJ	15
<u>CONSTRUCTION, GENERAL</u>		
MN	Chaska, MN	3
OR	Elk Creek Lake, OR	150
<u>OPERATION AND MAINTENANCE</u>		
AL	Robert F. Henry Lock & Dam - R. E. "Bob Woodruff Lake	20
AR	Degray Lake, AR	270
AR	Narrows Dam - Lake Greeson	165
CO	John Martin Reservoir, CO	10
CO	Trinidad Lake, CO	5
GA	Allatoona Lake, GA	130
GA	Buford Dam - Lake Sidney Lanier, GA	30
GA	Carters Lake, GA	30
GA	J. Strom Thurmond Dam & Reservoir, GA	150
GA	West Point Lake, GA	20
IA	Coralville Lake, IA	6
IA	Red Rock Dam - Lake Red Rock, IA	8
IA	Saylorville Lake, IA	6
ID	Dworshak Dam and Reservoir, ID	98
ID	Lucky Peak Lake, ID	11
IL	Carlyle Lake, IL	975
IL	Illinois Waterway, IL & IN	57
IL	Kaskaskia River Navigation, IL	10
IL	Lake Shelbyville, IL	50
IL	Mississippi River between Missouri River & Minneapolis, IL, MN, WI, & IA	174
IL	Mississippi River between Missouri River & Minneapolis, MN	1,343
IL	Mississippi River between Ohio River & Missouri	126
IN	Brookville Lake, IN	17
IN	Huntington Lake, IN	11
IN	Mississinewa Lake, IN	11
IN	Monroe Lake, IN	5
IN	Patoka Lake, IN	5
IN	Salamonie Lake, IN	10
KS	Council Grove Lake, KS	10
KS	Elk City Lake, KS	7
KS	Marion Reservoir, KS	11
KY	Barkley Dam and Lake Barkley	20
MA	Birch Hill Dam	50
MA	Cape Cod Canal, MA	15
MN	Mississippi River between Missouri & Minneapolis, MN	34
MN	Reservoirs at Headwaters of Mississippi River, MN	7
MO	Clarence Cannon Dan & Mark Twain Lake, MO	15
MO	Stockton Lake, MO	54
MS	Tennessee Tombigbee Waterway	37
MT	Libby Dam, MT	106
NC	W. Kerr Scott Dam and Reservoir, NC	55
ND	Garrison Dam, Lake Sakakawea, ND	134
NE	Gavins Point Dam, Lewis & Clark Lake, NE & SD	275
NM	Abiquiu Dam, NM	10
NM	Cochiti Lake, NM	40
NM	Conchas Lake, NM	10
NM	Galisteo Dam, NM	3
NM	Jemez Canyon Dam, NM	10
NM	Santa Rosa Dam and Lake, NM	10

STATE	PROJECT NAME	TOTAL
<u>OPERATION AND MAINTENANCE (CONT'D)</u>		
NM	Two Rivers Dam, NM	5
NY	Black Rock Channel and Tonawanda Harbor, NY	50
NY	Inspection of Completed Works	75
NY	Mt. Morris Lake, NY	150
OH	Clarence J. Brown Dam, OH	12
OH	Mosquito Creek Lake, OH	25
OH	West Fort of Mill Creek Lake, OH	27
OK	Canton Lake, OK	250
OK	Eufaula Lake, OK	31
OK	Fort Gibson Lake, OK	10
OK	Fort Supply Lake, OK	5
OK	Heyburn Lake, OK	5
OK	Hugo Lake, OK	8
OK	Keystone Lake, OK	20
OK	McClellan-Kerr Arkansas River Navigation System, OK	18
OK	Pine Creek Lake, OK	41
OR	Bonneville Lock & Dam - Lake Bonneville, OR	40
OR	Cougar Lake, OR	127
OR	Fern Ridge Lake, OR	19
OR	Green Peter-Foster Lakes, OR	25
OR	John Day Lock & Dam - Lake Umatilla, OR	294
OR	Lookout Point Lake, OR	60
OR	McNary Lock & Dam, OR	137
PA	Monongahela River, PA	135
PA	Shenango River Lake, PA	25
PA	Woodcock Creek Lake, PA	25
SD	Ft. Randall Dam, Lake Francis Case, SD	157
TN	Center Hill Lake, TN	500
TN	Cheatham Lock & Dam, TN	20
TN	Cordell Hull Dam and Reservoir, TN	13
TN	J. Percy Priest Dam and Reservoir, TN	623
TN	Old Hickory Lock & Dam, TN	20
TN	Tennessee River, TN	108
TX	Pat Mayse Lake, TX	12
TX	Red River Chloride Control - Area VIII, TX	7
TX	Whitney Lake, TX	181
WA	Grays Harbor and Chehalis River, WA	575
WA	Ice Harbor Lock & Dam, WA	51
WA	Little Goose Lock & Dam, WA	121
WA	Lower Granite Lock & Dam, WA	120
WA	Lower Monumental Lock & Dam, WA	53
WA	Mill Creek Lake, WA	41
WA	The Dalles Lock & Dam - Lake Celilo, WA	114
WV	Kanawha River Locks and Dams, WV	100
WV	Ohio River Locks & Dams, Huntington, WV	100
WV	Tygart Lake, WV	15
<u>MR&T</u>		
AR	Eastern Arkansas Region (Comprehensive Study), AR	240
TN	West Tennessee Tributaries, TN	15
TOTAL - COMPLIANCE		9,784
<u>MITIGATION</u>		
<u>GENERAL INVESTIGATIONS</u>		
	North American Waterfowl Management Plan	2
CA	American River Watershed, CA	50
CT	Central Connecticut Coastal Flooding, CT	35
CT	East Central Conn. Coastal Flooding, CT	25
NM	Espanola Valley, Rio Grande and Tributaries, NM	30

STATE	PROJECT NAME	TOTAL
<u>GENERAL INVESTIGATIONS (CONTD)</u>		
NM	Rio de Chama, Abiquiu Dam to Espanola, NM	8
OK	Cimarron River and Tribs, OK, NM, CO, & KS	15
OK	Optima Lake, OK	20
OR	Columbia River Navigation Channel Deepening, OR	190
RI	Coastal Rhode Island	25
TX	Brays Bayou, Houston, TX	17
TX	Cypress Creek, Houston, TX	174
TX	Greens Bayou, Houston, TX	50
TX	Houston - Galveston Navigation Channels, TX	143
WA	Chief Joseph Pool Raise, WA	160
WA	Howard Hanson Dam (Additional Storage), WA	400
<u>CONSTRUCTION, GENERAL</u>		
AL	Tennessee - Tombigbee Waterway Wildlife	13,000
CA	Coyote and Berryessa Creeks, CA	250
CA	Guadalupe River, CA	50
CA	Marysville/Yuba City Levee Reconstruction, CA	446
CA	Sacramento River Bank Protection Project, CA	240
CA	San Luis Rey River, CA	400
CA	Sweetwater River, CA	29
CA	West Sacramento, CA	1,624
CO	Habitat Restoration @ Lake Hasty (John Martin), CO	10
CO	Manitou Springs, CO	10
IA	Missouri River Fish and Wildlife Mitigation, IA, NE, KS, & MO	5,700
IL	Melvin Price Lock & Dam, IL & MO	20
IL	Olmsted Locks and Dam, IL & KY	3,250
IN	Little Calumet River, IN	1,209
LA	Aloha - Rigolette, LA	345
LA	Red River Waterway, Mississippi River to Shreveport, LA	1,369
MN	Chaska, MN	5
NC	AIWW - Replacement of Federal Highway Bridges, NC	48
NJ	Salem River, NJ	1,350
NM	Acequias Irrigation System, NM	180
NM	Alamogordo, NM	20
NM	Madrid Fire Station on Madrid Arroyo, NM	10
NM	Middle Rio Grande Flood Protection, Bernalillo, NM	450
NM	Rio Grande Floodway, San Acacia to Bosque Del Apache, NM	930
NM	Rocky Arroyo/Dark Canyon, Pecos River and Tributaries, NM	10
NM	Wetlands Habitat Restoration @ Albuquerque & Bernardo, NM	24
NY	Bedford Harbor, NY	40
NY	New York Harbor Collection and Removal of Drift, NY	100
OK	Fry Creeks, Bixby, OK	5
TX	Channel to Victoria, TX	218
TX	Red River Basin Chloride Control, TX & OK	200
VA	Roanoke River Upper Basin, Headwaters Area, VA	80
WA	Chehalis River, South Aberdeen and Cosmopolis, WA	250
WA	Columbia River Juvenile Fish Mitigation, WA & OR	78,800
WA	Lower Snake River Fish & Wildlife Compensation, WA	8,000
WV	Robert C. Byrd Locks & Dam, WV & OH	4,578
<u>MR&T</u>		
AR	Channel Improvement, AR, IL, KY, LA, MO, MS, & TN	127
AR	Mississippi River Levees, AR, IL, KY, LA, MO, & TN	5
AR	St. Francis Basin, AR & MO	150
MS	Yazoo Basin - Big Sunflower River, MS	688
MS	Yazoo Basin - Reformulation Unit, MS	370
MS	Yazoo Basin - Upper Yazoo Projects, MS	500
MS	Yazoo Basin - Yazoo Backwater F&WL Mitigation, MS	240
TOTAL - MITIGATION		126,674

STATE	PROJECT NAME	TOTAL
PROTECTION		
GENERAL INVESTIGATIONS		
CA	N. CA Streams, Sacramento River Fish Mitigation, CA	300
DC	Washington DC & Vicinity	25
LA	Mississippi River - Gulf Outlet Bank Erosion, LA	40
MD	Baltimore Harbor Anchorages & Channels, MD	65
MD	Chesapeake Bay Time Variable Model, MD, VA, PA, & DC	325
NJ	Stony Brook, Princeton Township, NJ	203
OR	Johnson Creek, OR	200
PA	Milton, PA	5
TX	Buffalo Bayou & Tributaries - Addicks & Barker, TX	34
TX	Corpus Christi Ship Channel, TX	56
TX	Sabine - Neches Waterway, Channel to Orange, TX	52
TX	South Main Channel, TX	57
VA	Nansemond River Basin, VA	30
CONSTRUCTION, GENERAL		
GA	Richard B. Russell Dam and Lake, GA & SC	1,900
LA	Lake Pontchartrain and Vicinity, LA (Hurricane Protection)	1,954
LA	Red River Waterway, Mississippi River to Shreveport, LA	85
NE	Missouri National Recreational River, NE & SD	35
OR	Elk Creek Lake, OR	400
PA	Lackawanna River, Olyphant, PA	100
PA	Presque Isle Peninsula, PA	31
TX	Sims Bayou, Houston, TX	225
WV	Moorefield, WV	25
WV	Petersburg, WV	25
OPERATION AND MAINTENANCE		
	Environmental Review Guide for Operations	2,000
AK	Chena River Lakes, AK	204
AL	Alabama - Coosa Rivers, AL	153
AL	Bayou Coden, AL	5
AL	Bayou La Batre, AL	5
AL	Black Warrior and Tombigbee Rivers, AL	356
AL	Dauphin Island Bay, AL	3
AL	Dog and Fowl Rivers, AL	5
AL	Millers Ferry Lock & Dam, William "Bill" Dannelly Lake, AL	87
AL	Mobile Harbor, AL	123
AL	Robert F. Henry Lock & Dam - R. E. "Bob" Woodruff Lake, AL	80
AL	Walter F. George Lock & Dam, AL	297
AR	Beaver Lake, AR	203
AR	Blakely Mt. Dam - Lake Ouachita, AR	150
AR	Blue Mountain Lake, AR	93
AR	Bull Shoals Lake, AR	172
AR	Dardanelle Lock & Dam, AR	139
AR	Degray Lake, AR	92
AR	Dequeen Lake, AR	24
AR	Dierks Lake, AR	26
AR	Gillham Lake, AR	96
AR	Greers Ferry Lake, AR	71
AR	McClellan-Kerr Arkansas River Navigation System, AR	228
AR	Millwood Lake, AR	34
AR	Narrows Dam - Lake Greeson, AR	189
AR	Nimrod Lake, AR	121
AR	Norfolk Lake, AR	119
AR	Ozark - Jeta Taylor Lock & Dam, AR	78
AZ	Alamo Lake Dam, AZ	97
AZ	Painted Rock Dam, AZ	68
AZ	Whitlow Ranch Dam, AZ	26
CA	Black Butte Lake, CA	14

STATE	PROJECT NAME	TOTAL
<u>OPERATION AND MAINTENANCE (CONT'D)</u>		
CA	Buchanan Dam H. V. Eastman Lake, CA	17
CA	Coyote Valley Dam - Lake Mendocino, CA	14
CA	Dry Creek Warm Springs Lake and Channel, CA	16
CA	Hidden Dam - Hensley Lake, CA	17
CA	Isabella Lake, CA	19
CA	LA County Drainage Area, CA	141
CA	Martis Creek Lake, CA	13
CA	Mojave River Reservoir, CA	18
CA	Moss Landing Harbor, CA	20
CA	Napa River, CA	20
CA	New Hogan Lake, CA	14
CA	New Melones Lake, CA	240
CA	Noyo River and Harbor, CA	20
CA	Petaluma River, CA	20
CA	Pine Flat Lake, CA	14
CA	Sacramento River Debris Control, CA	14
CA	San Francisco Bay Long Term Management Strategy, CA	150
CA	San Joaquin River, CA	7
CA	Santa Ana River Basin, CA	169
CA	Success Lake, CA	14
CA	Terminus Dam - Lake Kaweah, CA	16
CO	Bear Creek Lake, CO	59
CO	Chatfield Lake, CO	85
CO	Cherry Creek Lake, CO	73
CO	John Martin Reservoir, CO	26
CO	Trinidad Lake, CO	37
CT	Black Rock Lake, CT	29
CT	Colebrook River Lake, CT	38
CT	Hancock Brook Lake, CT	37
CT	Hop Brook Lake, CT	118
CT	Mansfield Hollow Lake, CT	38
CT	Northfield Brook Lake, CT	47
CT	Thomaston Dam, CT	60
CT	West Thompson Lake, CT	72
DE	IWW Delaware River to Chesapeake Bay, DE & MD	65
FL	Apalachicola Bay, FL	40
FL	Central & Southern Florida	402
FL	East Pass Channel, FL	5
FL	Jim Woodruff Lock & Dam, FL	148
FL	Okeechobee Waterway, FL	277
FL	Panama City Harbor, FL	93
FL	Port St. Joe Harbor, FL	72
GA	Allatoona Lake, GA	257
GA	Apalachicola Chattahoochee & Flint Rivers, GA	261
GA	Atlantic Intracoastal Waterway, GA	65
GA	Brunswick Harbor, GA	210
GA	Buford Dam - Lake Sidney Lanier, GA	285
GA	Carters Lake, GA	123
GA	Hartwell Lake, GA	219
GA	J. Strom Thurmond Dam and Reservoir, GA	251
GA	Richard B. Russell, GA	1,074
GA	Savannah Harbor, GA	576
GA	West Point Lake, GA	305
HI	Honolulu Harbor, Oahu, HI	230
IA	Coralville Lake, IA	204
IA	Missouri River, Rulo to Mouth, IA	185
IA	Missouri River, Sioux City IA, to Rulo, NE	194
IA	Rathbun Lake, IA	169
IA	Red Rock Dam - Lake Red Rock, IA	248
IA	Saylorville Lake, IA	262

STATE	PROJECT NAME	TOTAL
<u>OPERATION AND MAINTENANCE (CONTD)</u>		
ID	Albeni Falls Dam, ID	134
ID	Dworshak Dam and Reservoir, ID	766
ID	Lucky Peak Lake, ID	112
IL	Carlyle Lake, IL	301
IL	Chicago River, IL	300
IL	Illinois Waterway, IL	140
IL	Illinois Waterway, IL & IN	410
IL	Kaskaskia River Navigation, IL	7
IL	Lake Michigan Diversion, IL	100
IL	Lake Shelbyville, IL	401
IL	Mississippi River Between Missouri River & Minneapolis, IL, MN, WI & IA	768
IL	Mississippi River Between Missouri River & Minneapolis, MN, IL	323
IL	Mississippi River Between Ohio River & Missouri, IL	145
IL	Rend Lake, IL	273
IL	Waukegan Harbor, IL	60
IN	Brookville Lake, IN	92
IN	Burns Waterway Small Boat Harbot, IN	50
IN	Cagles Mill Lake, IN	87
IN	Cecil M. Harden Lake, IN	80
IN	Huntington Lake, IN	75
IN	Michigan City Harbor, IN	10
IN	Mississinewa Lake, IN	89
IN	Monroe Lake, IN	95
IN	Patoka Lake, IN	223
IN	Salamonie Lake, IN	79
KS	Clinton Lake, KS	156
KS	Council Grove Lake, KS	22
KS	El Dorado Lake, KS	31
KS	Elk City Lake, KS	61
KS	Fall River Lake, KS	24
KS	Hillsdale Lake, KS	166
KS	John Redmond Dam and Reservoir, KS	85
KS	Kanopolis Lake, KS	216
KS	Marion Reservoir, KS	28
KS	Melvern Lake, KS	137
KS	Milford Lake, KS	87
KS	Pearson-Skubitz Big Hill Lake, KS	70
KS	Perry Lake, KS	101
KS	Pomona Lake, KS	183
KS	Toronto Lake, KS	20
KS	Tuttle Creek Lake, KS	168
KS	Wilson Lake, KS	101
KY	Barkley Dam and Lake Barkley, KY	353
KY	Barren River Lake, KY	268
KY	Buckhorn Lake, KY	169
KY	Carr Fork Lake, KY	153
KY	Cave Run Lake, KY	210
KY	Dewey Lake, KY	111
KY	Fishtrap Lake, KY	108
KY	Grayson Lake, KY	62
KY	Green River Lake, KY	256
KY	Laurel River Lake, KY	119
KY	Martins Fork Lake, KY	195
KY	Nolin Lake, KY	268
KY	Ohio River Locks & Dams, KY	303
KY	Paintsville Lake, KY	89
KY	Rough River Lake, KY	275
KY	Taylorsville Lake, KY	257
KY	Wolf Creek Dam - Lake Cumberland, KY	325
KY	Yatesville Lake, KY	123

STATE	PROJECT NAME	TOTAL
<u>OPERATION AND MAINTENANCE (CONTD)</u>		
LA	Atchafalaya River and Bayous Chene, Boeuf and Black, LA	40
LA	Barataria Bay Waterway, LA	105
LA	Bayou Bodcau Reservoir, LA	75
LA	Bayou Teche, LA	8
LA	Calcasieu River and Pass, LA	30
LA	Freshwater Bayou, LA	30
LA	Gulf Intracoastal Waterway (GIWW), LA	25
LA	Houma Navigation Canal, LA	168
LA	Mermentau River, LA	30
LA	Mississippi River - Baton Rouge to Gulf of Mexico, LA	172
LA	Mississippi River - Gulf Outlet, LA	180
LA	Mississippi River Outlets at Venice, LA	5
LA	Ouachita & Black Rivers, AR & LA	76
LA	Red River Waterway - Mississippi River to Shreveport, LA	106
MA	Barre Falls Dam, MA	45
MA	Birch Hill Dam, MA	61
MA	Buffumbille Lake, MA	36
MA	Charles River Natural Valley Storage Area	36
MA	Conant Brook Dam, MA	21
MA	Disposal Area Monitoring, MA	885
MA	East Brimfield Lake, MA	46
MA	Hodges Village Dam, MA	56
MA	Knightville Dam, MA	46
MA	Littleville Lake, MA	41
MA	Tuly Lake, MA	55
MA	West Hill Dam, MA	64
MA	Westville Lake, MA	45
MD	Baltimore Harbor & Channels, MD	625
MD	Scheduling Flood Control, MD	34
MI	Channels in Lake St. Clair, MI	45
MI	Detroit River, MI	20
MI	Grand Haven Harbor, MI	280
MI	Holland Harbor, MI	100
MI	Keweenaw Waterway, MI	10
MI	Project Condition Surveys, MI, WI, & MN	10
MI	Saginaw River, MI	201
MI	Saugatuck Harbor, MI	14
MI	St. Joseph Harbor, MI	185
MN	Bigstone Lake Whetstone River, MN & SD	22
MN	Duluth-Superior Harbor, MN	290
MN	Lac Qui Parle Lakes, Minnesota River, MN	203
MN	Mississippi River Between Missouri & Minneapolis, MN	384
MN	Orwell Lake, MN	40
MN	Red Lake River, MN	7
MN	Reservoirs at Headwaters of Mississippi River, MN	56
MO	Clarence Cannon Dam & Mark Twain Lake, MO	592
MO	Clearwater Lake, MO	109
MO	Harry S. Truman Dam and Reservoir, MO	682
MO	Little Blue River Lakes, MO	111
MO	Long Branch Lake, MO	159
MO	New Madrid Harbor, MO	10
MO	Pomme de Terre Lake, MO	215
MO	Smithville Lake, MO	217
MO	Stockton Lake, MO	156
MO	Table Rock Lake, MO	401
MS	Biloxi Harbor, MS	5
MS	Gulfport Harbor, MS	76
MS	Okatibbee Lake, MS	287
MS	Pascagoula Harbor, MS	90
MS	Tennessee Tombigee Waterway, MS	1,490

STATE	PROJECT NAME	TOTAL
<u>OPERATION AND MAINTENANCE (CONT'D)</u>		
MT	Fort Peck Dam and Lake, MT	230
MT	Libby Dam, MT	143
NC	AIWW - Wilmington District, NC	187
NC	B. Everett Jordan Dam and Lake, NC	160
NC	Cape Fear River above Wilmington, NC	35
NC	Falls Lake, NC	198
NC	Masonboro Inlet and Connecting Channels, NC	50
NC	Morehead City Harbor, NC	148
NC	Wilmington Harbor, NC	33
NC	W. Kerr Scott Dam and Reservoir, NC	94
ND	Bowman Haley Lake, ND	45
ND	Garrison Dam - Lake Sakakawea, ND	592
ND	Homme Lake and Dam, ND	14
ND	LAke Ashtabula and Baldhill Dam, ND	217
ND	Pipestem Lake, ND	96
ND	Souris River, ND	101
NE	Harlan County Lake, NE	143
NE	Papillion Creek & Tributaries Lakes, NE	134
NE	Salt Creek and Tributaries, NE	196
NH	Blackwater Dam, NH	50
NH	Edward MacDowell Lake, NH	45
NH	Franklin Falls Dam, NH	48
NH	Hopkinton-Everett Lakes, NH	126
NH	Otter Brook Lake, NH	61
NH	Surry Mountain Lake, NH	61
NJ	Delaware River Philadelphia to the Sea, NJ, PA, & DE	23
NJ	New Jersey Intracoastal Waterway, NJ	10
NM	Abiquiu Dam, NM	67
NM	Cochiti Lake, NM	71
NM	Conchas Lake, NM	63
NM	Galisteo Dam, NM	26
NM	Jemez Canyon Dam, NM	7
NM	Santa Rosa Dam and Lake, NM	130
NM	Two Rivers Dam, NM	9
NY	Almond Lake, NY	25
NY	Arkport, NY	13
NY	East Sidney Lake, NY	28
NY	New York Harbor, NY	5,520
NY	Whitney Point Lake, NY	29
OH	Alum Creek Lake, OH	52
OH	Berlin Lake, OH	74
OH	Caesar Creek Lake, OH	106
OH	Clarence J. Brown Dam, OH	112
OH	Cleveland Harbor, OH	75
OH	Deer Creek Lake, OH	39
OH	Delaware Lake, OH	50
OH	Dillon Lake, OH	38
OH	Michael J. Kirwan Dam & Reservoir, OH	92
OH	Mosquito Creek Lake, OH	133
OH	Muskingum River Reservoirs, OH	139
OH	North Branch Kokosing River Lake, OH	2
OH	Paint Creek Lake, OH	59
OH	Tom Jenkins Dam, OH	17
OH	West Fork of Mill Creek Lake, OH	74
OH	William H. Harsha Lake, OH	99
OK	Arcadia Lake, OK	4
OK	Birch Lake, OK	85
OK	Broken Bow Lake, OK	72
OK	Candy Lake, OK	34
OK	Canton Lake, OK	106

STATE	PROJECT NAME	TOTAL
	<u>OPERATION AND MAINTENANCE (CONT'D)</u>	
OK	Copan Lake, OK	51
OK	Eufaula Lake, OK	447
OK	Fort Gibson Lake, OK	143
OK	Fort Supply Lake, OK	72
OK	Heyburn Lake, OK	57
OK	Hugo Lake, OK	32
OK	Hulah Lake, OK	50
OK	Kaw Lake, OK	134
OK	Keystone Lake, OK	455
OK	McClellan-Kerr Arkansas River Navigation System, OK	121
OK	Oologah Lake, OK	110
OK	Optima Lake, OK	16
OK	Pine Creek Lake, OK	61
OK	Robert S. Kerr Lock & Dam & Reservoir, OK	77
OK	Sardis Lake, OK	100
OK	Skiatook Lake, OK	33
OK	Tenkiller Ferry Lake, OK	177
OK	Waurika Lake, OK	93
OK	Webbers Falls Lock & Dam, OK	120
OK	Wister Lake, OK	73
OR	Applegate Lake, OR	74
OR	Blue River Lake, OR	15
OR	Bonneville Lock & Dam - Lake Bonneville, OR	258
OR	Columbia River between Vancouver, WA & the Dalles, OR	44
OR	Cottage Grove Lake, OR	84
OR	Cougar Lake, OR	24
OR	Detroit Lake, OR	32
OR	Dorena Lake, OR	59
OR	Fall Creek Lake, OR	81
OR	Fern Ridge Lake, OR	89
OR	Green Peter-Foster Lakes, OR	208
OR	Hill Creek Lake, OR	27
OR	John Day Lock & Dam - Lake Umatilla, OR	317
OR	Lookout Point Lake, OR	345
OR	Lost Creek Lake, OR	279
OR	McNary Lock & Dam, OR	527
OR	Siuslaw River, OR	27
OR	Skipanon Channel, OR	44
OR	Tillamook Bay and Bar, OR	30
OR	Umpqua River, OR	27
OR	Willow Creek Lake, OR	60
PA	Allegheny River, PA	79
PA	Alvin R. Bush Dam, PA	53
PA	Aylesworth, PA	26
PA	Beltzville Lake, PA	88
PA	Blue Marsh Lake, PA	116
PA	Conemaugh River Lake, PA	120
PA	Cowanesque Lake, PA	129
PA	Crooked Creek Lake, PA	188
PA	Curwensville, PA	55
PA	East Branch Clarion River Lake, PA	73
PA	Foster Joseph Sayers Dam, PA	87
PA	Francis E. Walter Dam, PA	45
PA	Kinzua Dam and Allegheny Reservoir, PA	241
PA	Loyalhanna Lake, PA	94
PA	Mahoning Creek Lake, PA	109
PA	Monongahela River, PA	91
PA	Ohio River Locks and Dams Construction, PA	47
PA	Prompton Lake, PA	38
PA	Raystown Lake, PA	404

STATE	PROJECT NAME	TOTAL
<u>OPERATION AND MAINTENANCE (CONTD)</u>		
PA	Shenango River Lake, PA	200
PA	Stillwater Lake, PA	12
PA	Tioga-Hammond Lakes, PA	244
PA	Tionesta Lake, PA	62
PA	Union City Lake, PA	39
PA	Woodcock Creek Lake, PA	54
PA	York Indian Rock Dam, PA	31
PA	Youghiogheny River Lake, PA	212
SC	Charleston Harbor, SC	155
SC	Cooper River Charleston Harbor, SC	294
SC	Georgetown Harbor, SC	101
SD	Big Bend Dam, Lake Sharpe, SD	667
SD	Cold Brook Lake, SD	34
SD	Cottonwood Springs Lake, SD	25
SD	Fort Randall Dam - Lake Francis Case, SD	494
SD	Gavins Point Dam - Lewis & Clark Lake, NE & SD	458
SD	Lake Traverse and Bois de Sioux, SD & MN	90
SD	Oahe Dam Lake, Oahe, SD & ND	1,196
SD	Scheduling Reservoir Operations, SD	53
TN	Center Hill Lake, TN	311
TN	Cheatham Lock & Dam, TN	299
TN	Cordell Hull Dam and Reservoir, TN	390
TN	Dale Hollow Lake, TN	384
TN	J. Percy Priest Dam and Reservoir, TN	294
TN	Old Hickory Lock and Dam, TN	341
TN	Tennessee River, TN	15
TX	Aquilla Lake, TX	84
TX	Bardwell Lake, TX	86
TX	Belton Lake, TX	167
TX	Benbrook Lake, TX	111
TX	Brazos Island Harbor, TX	53
TX	Canyon Lake, TX	116
TX	Cooper Lake and LChannels, TX	256
TX	Denison Dam - Lake Texoma, TX, and OK	157
TX	Ferrells Bridge Dam - Lake O' The Pines, TX	139
TX	Granger Dam and Lake, TX	62
TX	Grapevine Lake, TX	82
TX	Gulf Intracoastal Waterway, TX	1,375
TX	Hords Creek Lake, TX	109
TX	Joe Pool Lake, TX	129
TX	Lavon Lake, TX	123
TX	Lewisville Dam, TX	125
TX	Navarro Mills Lake, TX	110
TX	North San Gabriel Dam and Lake Georgetown, TX	111
TX	O. C. Fisher Dam and Lake, TX	78
TX	Pat Mayse Lake, TX	52
TX	Proctor Lake, TX	83
TX	Ray Roberts Lake, TX	63
TX	Red River Chloride Control - Area VIII, TX	4
TX	Sabine - Neches Waterway, TX	303
TX	Sam Rayburn Dam and Reservoir, TX	185
TX	Somerville Lake, TX	139
TX	Stillhouse Hollow Dam, TX	140
TX	Town Bluff Dam - B. A. Steinhagen Lake, TX	75
TX	Waco Lake, TX	129
TX	Wallisville, TX	23
TX	Whitney Lake, TX	161
TX	Wright Patman Dam and Lake, TX	237
VA	Gathright Dam and Lake Moomaw, VA	255
VA	James River, VA	149

STATE	PROJECT NAME	TOTAL
OPERATION AND MAINTENANCE (CONTD)		
VA	John H. Kerr Dam and Reservoir, VA & NC	493
VA	John W. Flannagan Dam and Reservoir, VA	81
VA	Norfolk Harbor, VA	500
VA	North Fork of Pound Lake, VA	16
VA	Philpott Lake, VA	62
VA	Thimble Shoal Channel, VA	73
VA	Waterway on the Icoast of Virginia. VA	122
VT	Ball Mountain Lake, VT	94
VT	North Hartland Lake, VT	51
VT	North Springfield Lake, VT	64
VT	Townshend Lake, VT	85
VT	Union Village Dam, VT	64
WA	Chief Joseph Dam, WA	871
WA	Columbia & Lower Willamette Rivers Below Vancouver, WA & Portland,	1,302
WA	Everett Harbor and Snohomish River, WA	55
WA	Grays Harbor and Chehalis River, WA	30
WA	Howard A. Hanson Dam, WA	40
WA	Ice Harbor Lock & Dam, WA	538
WA	Lake Washington Ship Canal, WA	52
WA	Little Goose Lock & Dam, WA	444
WA	Lower Granite Lock & Dam, WA	530
WA	Lower Monumental Lock & Dam, WA	368
WA	Mill Creek Lake, WA	96
WA	Mt. St. Helen Sediment Control Structure, WA	19
WA	Mud Mountain Dam, WA	43
WA	The Dalles Lock & Dam - Lake Celilo, WA	232
WI	Eau Galle River Lake, WI	22
WI	Green Bay Harbor, WI	30
WI	La Farge Lake, WI	20
WI	Milwaukee Harbor, WI	110
WI	Two Rivers Harbor, WI	20
WV	Beech Fork Lake, WV	73
WV	Bluestone Lake, WV	43
WV	Burnsville Lake, WV	51
WV	East Lynn Lake, WV	80
WV	Jennings Randolph Lake, WV	259
WV	Kanawha River Locks & Dams, WV	211
WV	Ohio River Locks & Dams, Huntington, WV	388
WV	Ohio River Open Channel Work, Huntington, WV	47
WV	R. D. Bailey Lake, WV	99
WV	Stonewall Jackson Lake, WV	133
WV	Summersville Lake, WV	54
WV	Sutton Lake, WV	43
WV	Tygart Lake, WV	133
WY	Jackson Levees, WY	6
MR&T		
AR	Channel Improvement, AR, IL, KY, LA, MO, MS, & TN	290
AR	Mississippi River Levees, AR, IL, KY, LA, MO, & TN	88
LA	Atchafalaya Basin, Floodway System, LA	3,703
LA	Atchafalaya Basin, LA	145
TOTAL - PROTECTION		81,620

STATE	PROJECT NAME	TOTAL
RESTORATION		
GENERAL INVESTIGATIONS		
AR	Southwest Arkansas Study, AR	150
CA	Northern California Streams, Cache Creek Environmental, CA	200
CA	Sacramento - San Joaquin Delta, Little Holland, CA	290
CA	Sacramento - San Joaquin Delta, Prospect Island, CA	100
CA	San Joaquin River Basin, Pine Flat Dam, F&WL Habitat, CA	500
CT	East Central Connecticut Coastal Flooding, CT	10
DE	Delaware Bay Coastline, DE & NJ	50
GA	Lower Savannah River Basin, GA & SC	325
IL	Alexander and Pulaski Counties, IL	150
MA	Blackstone River Watershed Restoration, MA & RI	300
MD	Anacostia River and Tributaries, MD & DC	1,200
MD	Anacostia River Federal Watershed Impact, MD	300
MD	Baltimore Metropolitan Water Resources Study, MD	400
MD	Jennings Randolph Lake - Reallocation, MD & VA	50
MD	Lower Eastern LShore, MD & DE	200
MD	Ocean City, MD and Vicinity	300
MD	Patuxent River Water Resources, MD	200
MD	Smith Island Environmental Restoration, MD	200
NJ	Lower Cape May Meadows - Cape May Point, NJ	85
NJ	Raritan Bay and Sandy Hook Bay, NJ	200
NJ	Toiwnsends Inlet to Cape May Inlet, NJ	10
NY	Hudson River Habitat Restoration, NY	250
NY	Susquehanna River Basin Water Management, NY, PA	50
OR	Middle Fork Willamette Fishery Restoration, OR	350
OR	South Santiam Fishery Restoration, OR	35
OR	Willamette River Temperature Control, OR	1,000
SD	James River Environmental, SD	10
TX	GIWW - Arkansas National Wildlife Refuge, TX	1,600
TX	GIWW - Corpus Christi Bay to Port Isabel, TX	66
TX	GIWW - High Island to Brazos River, TX	41
TX	GIWW - Port O'Connor to Corpus Christi Bay, TX	35
TX	Guadalupe and San Antonio Rivers, TX	50
TX	Jefferson County, TX	70
WV	North Branch Potomac River Environmental Restoration, WV	250
WV	Jackson Hole Restoration, WV	270
CONSTRUCTION, GENERAL		
CA	Yolo Basin Wetlands, Sacramento River, CA	435
CA	Santa Ana River Mainstem, CA	600
CA	Sonoma Baylands Wetland Demonstration Project, CA	500
FL	Kissimmee River, FL	2,125
IL	Upper Mississippi Rvr. Sys. Envir. Mgmt. Prog., IL, IA, MO, NM, & WI	19,500
KY	Barkley Dam and Lake Barkley, KY	97
MD	Chesapeake Bay Oyster Recovery, MD	488
NM	Middle Rio Grande Flood Protection, Bernalillo, NM	100
PA	Broad Top Region, PA	710
PA	Wyoming Valley, PA (Levee Raising)	16
VA	James River Oyster Restoration, VA	7
WV	Moorefield, WV	175
WV	Petersburg, WV	475
OPERATION AND MAINTENANCE		
CA	Coyote Valley Dam - Lake Mendocino, CA	375
CA	Dry Creek - Warm Springs Lake and Channel, CA	770
ID	Dworshak Dam and Reservoir, ID	2,795
MT	Libby Dam, MT	244
NE	Harlan County Lake, NE	8
OR	Applegate Lake, OR	168
OR	Bonneville Lock & Dam - Lake Bonneville, OR	4,524

STATE	PROJECT NAME	TOTAL
<u>OPERATION AND MAINTENANCE (CONTD)</u>		
OR	Cottage Grove Lake, OR	8
OR	Cougar Lake, OR	340
OR	Detroit Lake, OR	494
OR	Dorena Lake, OR	8
OR	Fall Creek Lake, OR	71
OR	Green Peter-Foster Lakes, OR	448
OR	Hills Creek Lake, OR	110
OR	John Day Lock & Dam - Lake Umatilla, OR	4,136
OR	Lookout Point Lake, OR	1,677
OR	Lost Creek Lake, OR	1,294
OR	McNary Lock & Dam, OR	5,172
SC	Cooper River - Charleston Harbor, SC	149
VT	Townshend Lake, VT	25
WA	Ice Harbor Lock & Dam, WA	2,269
WA	Lake Washington Ship Canal, WA	55
WA	Little Goose Lock & Dam, WA	1,791
WA	Lower Granite Lock & Dam, WA	2,663
WA	Lower Monumental Lock & Dam, WA	2,738
WA	Mud Mountain Dam, WA	70
WA	The Dalles Lock & Dam - Lake Celilo, WA	3,558
<u>MR&T</u>		
LA	Mississippi and Louisiana Estuarine Areas, MS & LA	1,500
LA	Mississippi Delta Region, LA	13,300
MS	Yazoo Basin - Demonstration Erosion Control, MS	300
TN	Reelfoot Lake, TN	85
TN	Wolf River, Memphis, TN	90
<u>DOMESTIC AGENCIES</u>		
FL	Everglades National Park, FL	<u>6,141</u>
TOTAL - RESTORATION		91,901
TOTAL - FY 1996 ENVIRONMENTAL PROJECTS		322,637
<u>PROGRAMMATIC ACTIVITIES</u>		
	Environmental Review Guide for Operations (ERGO)	2,000
	Hazardous Waste Site Restoration Initiative	3,500
	Natural Resources Inventory	750
	Oil Spill Research Appropriation	675
	Pollution Prevention Program	5,000
	Project Modification for Improvement of the Environment (Section 1135)	23,780
	Regulatory Program	112,000
	Research and Development	14,877
	Wetlands Action Plan Implementation	650
	Wetlands and Aquatic Habitat Creation	<u>15,000</u>
TOTAL - PROGRAMMATIC ACTIVITIES		178,232

PROGRAM PERFORMANCE

Senator DOMENICI: Gentlemen, one area of concern to the Committee is the ability of the Corps of Engineers to efficiently use the appropriations for Civil Works projects nationwide. Dr. Zirschky, your statement attempts to put the problem in the best light by indicating an overall 72% execution rate for the funded program. By contrast, the

execution rate for the Construction, General, account was only 56% in FY 1994, meaning that the Corps was able to use only \$.50 out of each \$1.00 available.

What are the primary factors contributing to this poor performance and can you give the committee an idea or sense of how much, in dollar terms or percentage, is attributable to each factor? How have over optimistic schedules or estimates of the Corps' "capability" to use funds on a particular project contributed to the problem? What actions have or are being taken to make capability statements and project schedules for the FY 96 budget reflect the true ability of a District to carry out the total program effort?

Dr. ZIRSCHKY: Mr. Chairman, the Corps is taking action in two problem areas to reduce our unobligated balances. First, we are attempting to provide more realistic estimates of our funding needs. In the past, our estimates were generally based on an optimistic view of the progress of each individual project. We have found that even those schedules developed in the first quarter of the current fiscal year have overstated total funding needs by substantial percentages. Clearly, we need to refine our processes for developing cost estimates and schedules, and for converting these schedules and estimates into our requirements for new budget authority. This year, we are reducing our request by over \$357 million to better align that request to our expected outlays. Second, we are intensively managing our program execution in order to resolve, avoid, or simplify those impediments to project execution that result in avoidable schedule delays. For example, we have made specific improvements in the area of Headquarters executive direction and management to make it more accountable to the project schedule. We have made improved program execution a major objective of our senior Headquarters staff, and it is the principal topic at the Project Review Board meetings and at quarterly Command Management Reviews. The progress of the largest studies and projects in the civil works study and design and construction programs will be monitored on a monthly basis to detect program slippages early, while corrective action can still be taken. These projects account for approximately one-half of the General Investigations and Construction, General funds scheduled for expenditure during Fiscal Year 1995. We will continue to reevaluate our funding requirements periodically, and to adjust our resources to most efficiently accomplish our mission. While we think it will take two years to fully recover from the situation I described in my testimony, we are confident the problem is now under control. Our scheduled and actual expenditures are now running neck and neck, for the first time in several years.

PERFORMANCE AND EXECUTION

MR. DOMENICI. How serious are you, Dr. Zirschky, General Williams and General Genega as leaders of the Army Corps of Engineers, in reflecting performance, productivity and execution in evaluation reports and providing advancement for the top performers?

DR. ZIRSCHKY. Performance and execution of the program is now an element of the annual performance standards of each senior officer and senior executive in the Corps. The degree to which those individuals execute in accordance with the established standards will determine their performance rating for the year. Individuals who receive top performance ratings are generally the individuals who are selected for advancement. We have made a concerted effort to bring higher standards of execution into performance evaluation and we are committed to continuing the effort.

STREAMLINING CORPS' PROGRAMS

SENATOR DOMENICI. Could you bring the Committee up to date on where we stand with regards to streamlining the Corps' program and what actions have been taken to reduce your manpower.

Dr. ZIRSCHKY. The Corps Civil Works Streamlining Plan calls for a 12%, or approximately 3,400 FTE, workforce reduction below its FY 1993 base of 29,194 FTE by FY 1999. By the end of FY 1995 we expect to have reduced at least 1,355 FTE or approximately 4.6%. We have achieved that reduction, and have scheduled future decreases, by reducing Headquarters and Division Office staffing; implementing business process improvements, such as the elimination of layering in our policy and technical review processes and a revision in the Feasibility Study process; empowerment of District offices; consolidation of administrative functions, such as human resources management, finance and accounting and payroll; and increased contracting out. All of our personnel reductions to date have been managed through normal attrition and the use of the Voluntary Separation Incentive Pay (VSIP) and Voluntary Early Retirement Authority (VERA) programs.

SENATOR DOMENICI. Do you have a plan as to how the manpower reductions will be met? Can you lay out for the Committee what additional actions are contemplated to reach the 3,400 FTE reduction by the year 2000?

Dr. ZIRSCHKY. Our plan to complete the streamlining of the Corps is to continue along the path we have established, and which I just summarized. Some of the planned savings, such as those from the consolidation of personnel offices and finance and accounting offices will be achieved in fiscal years 1996-1998. We have recently completed and implemented a study of Division Offices which will generate savings in fiscal years 1995 and 1996. In addition, we have a study of Headquarters which we expect to complete this year. We have also initiated additional business process improvements and we plan to initiate a District restructuring effort this summer to look for means to increase the efficiency of District operations. I am confident that we can achieve our reduction targets.

CONSOLIDATION OF FUNCTIONS

SENATOR DOMENICI. General Williams, last year you stated that without a consolidation of functions there would be impacts on the Corps' ability to execute the Civil Works Program.

First, do you still have that concern? Will you be able to meet the 12% reduction without adverse impact on the Civil Works program? What consolidations are planned or envisioned now or in the future to meet the required manpower levels?

GENERAL WILLIAMS. As Dr. Zirschky has mentioned, we are consolidating some functions such as payroll, personnel and finance and accounting. We are also protecting our technical expertise in some areas through the maintenance of centers of expertise, such as our Hydropower Design Center of Expertise in the North Pacific Division. Clearly, the amount of future hydropower design work is limited primarily to rehabilitation, uprating, replacement and maintenance of existing facilities, so we are concentrating our hydropower design in a single location to maintain the depth of expertise essential to insure quality products at a reasonable price. There is no question that we will have to pursue similar strategies in other disciplines; however, I am confident that we can maintain our capability to ensure quality products to the American public even as we adapt to our changing workload requirements.

SENATOR DOMENICI. In addition to downsizing government savings proposed previously, the FY 1996 budget also proposes about \$1.0 billion in additional reductions as the result of policy changes. How will these additional funding reductions impact your manpower levels? How will the manpower reductions be spread across the Corps' structure?

GENERAL WILLIAMS. The additional reductions estimated from proposed policy changes would result in a reduced staffing requirement of 2,500-3,000 FTE. Unlike the streamlining reductions, which are being achieved through management efficiencies, these reductions would be caused by reduced funding. Corps Districts are funded in accordance with the projects they plan, design, operate and maintain. Project workload requirements are therefore the primary basis for determining the distribution of our workforce resources. To the extent that we receive less project funding, we will reduce staff accordingly and these reductions would principally affect the Districts where project funding is reduced or eliminated.

SENATOR DOMENICI. General Williams, last year you stated that without a consolidation of functions there would be impacts on the Corps' ability to execute the Civil Works Program.

First, do you still have that concern? Will you be able to meet the 12% reduction without adverse impact on the Civil Works program? What consolidations are planned or envisioned now or in the future to meet the required manpower levels?

GENERAL WILLIAMS. As Dr. Zirschky has mentioned, we are consolidating some functions such as payroll, personnel and finance and accounting. We are also protecting our technical expertise in some areas through the maintenance of centers of expertise, such as our Hydropower Design Center of Expertise in the North Pacific Division. Clearly, the amount of future hydropower design work is limited primarily to rehabilitation, uprating, replacement and maintenance of existing facilities, so we are concentrating our hydropower design in a single location to maintain the depth of expertise essential to insure quality products at a reasonable price. There is no question that we will have to pursue similar strategies in other disciplines; however, I am confident that we can maintain our capability to ensure quality products to the American public even as we adapt to our changing workload requirements.

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HOPPER DREDGES -- MINIMUM FLEET

Senator DOMENICI. What is the current status of the report on the Corps of Engineers' Hopper Dredge Minimum Fleet, and your plans on submitting the report to Congress?

General WILLIAMS. The report will not be released at this time. An analysis performed by the Army Audit Agency has determined that the data used in the draft report is not sufficiently reliable to develop management decisions on the configuration of the Corps minimum fleet. An improved data collection system has been developed, and it is expected that the study can be revisited in approximately two years.

Senator DOMENICI. For the past several years, Congress has directed the Corps of Engineers to put out for competitive bid 7.5 million cubic yards of hopper dredge work accomplished with government hopper dredges. Have you had sufficient time to collect data and assess the cost effectiveness of having the private sector perform this dredging work?

General WILLIAMS. Yes, Industry has demonstrated that they can perform the additional hopper dredging work at a reasonable cost and in a timely manner.

Senator DOMENICI. What is the Corps plan regarding competitively bidding 7.5 million cubic yards of hopper dredging work in FY 1996?

General WILLIAMS. The Corps will advertise for competitive bidding 7.5 million cubic yards of hopper dredging work in the past performed by Corps hopper dredges.

DREDGE McFARLAND

Senator DOMENICI. The budget includes \$8.0 million under the Revolving Fund for rehabilitation of the Dredge McFARLAND which works out of Philadelphia. What is the total cost to maintain, modernize and upgrade the McFARLAND, and how much is being requested in FY 1996 to accomplish the work?

General WILLIAMS. The rehabilitation cost is \$8.0 million, and annual maintenance and repair costs range \$4-7.0 million. In FY 1996, \$8.0 million is being requested for the rehabilitation work of the McFARLAND.

Senator DOMENICI. I believe the Corps had planned to either retire or place the McFARLAND in standby status. What has changed in the past year that makes it necessary to keep the dredge in the active fleet?

General WILLIAMS. There has never been an approved plan to retire or place the McFARLAND in a standby status. Until reliable data are collected to determine the dredging requirements and Industry capability, the Corps minimum fleet will remain operational.

Senator DOMENICI. Why should the work be undertaken prior to the Corps' assessment of the size and makeup of the minimum fleet? What assurance can you give that the McFARLAND will be part of the recommended minimum fleet?

General WILLIAMS. The McFARLAND is 28 years old and is in need of modernization and rehabilitation. The dredge has a useful life of 50 years and improvements will ensure that the Corps fleet is configured with efficient productive vessels. Any prediction of what will be the final configuration for the Corps minimum fleet will have to wait for additional data and analysis.

NEW STARTS

MR. DOMENICI. Dr. Zirschky, the FY 1995 budget did not contain any new reconnaissance studies or new construction starts and the testimony from last year indicates that the decision to defer new starts for FY 1995 was made solely on the basis of budgetary considerations in order to stay within the discretionary spending cap.

What change in budgetary constraints has occurred since last year that makes it possible to include new starts in the FY 1996 budget request?

DR. ZIRSCHKY. The ability to include a modest package of new starts in FY 1996 came about as a result of internal Corps discipline. General Genega and his staff made a concerted effort to bring discipline to the budget requests of individual project managers. At each level of the Corps, managers examined carefully their ability to expend funds, reviewing carefully past performance and scheduled performance for FY 1995. This identified \$357 million in prior year appropriations that could be programmed for use in FY 1996, resulted in a somewhat reduced requirement for the continued program, and thereby make funds available for the modest group of new starts.

ON-GOING STUDIES AND CONSTRUCTION PROJECTS

Senator DOMENICI. Are all on-going studies and construction projects included in the budget for FY 1996 funded at the optimum rate to maintain the completion schedules envisioned in the FY 1995 budget? If not, include a list of those projects experiencing delays and a brief explanation of why they are not funded at the optimum rate.

DR. ZIRSCHKY. All on-going studies and construction projects included in the budget for FY 1996 are funded at the optimum rate to accomplish scheduled work in FY 1996. The FY 1996 General Investigations appropriation request of \$155,625,000 together with the unobligated carryover from FY 1995 of \$38,323,000 for a total FY 1996 program of \$213,948,000 is the optimum funding level for all studies for which funds were requested in FY 1995. The FY 1996 Construction, General appropriation request of \$785,125,000 together with the programmed unobligated carryover from FY 1995 of \$352,125,000 for a total FY 1996 program of \$1,137,579,000 is the optimum funding level for all projects for which funds were requested in FY 1995. However, constrained budget ceilings for the foreseeable future beyond FY 1996 will very likely result in delays to study and projects completions unless we are successful in identifying mission changes to achieve the necessary savings.

Senator DOMENICI. How many projects are or will be ready for construction in FY 1996 but have not been included in the budget due to budget constraints, or for existing or new policy reasons? Please provide for the record a list of those projects, including the estimated Federal cost, purpose, allocation to date, and the reason, either budgetary or policy, for the delay.

DR. ZIRSCHKY. Eight projects, one project element, and one program were not eligible under the new proposed guidelines. I will provide the Committee with a list.

(The information follows:)

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS - CIVIL WORKS
CONSTRUCTION, GENERAL
FISCAL YEAR 1996 PROJECTS AND PROGRAMS
NOT ELIGIBLE UNDER NEW PROPOSED GUIDELINES

PROJECT/PROGRAM NAME	PROJECT PURPOSE	FEDERAL COST (\$000)	ALLOC TO DATE	REASON NOT BUDGETED
AQUATIC PLANT CONTROL PROGRAM	APC	N/A	N/A	POLICY CONCERNS
HOLES CREEK, W. CARROLLTON, OH	LPP	3,349	862	POLICY CONCERNS
LOWER SACRAMENTO AREA LEVEE RECONSTRUCTION, CA	LPP	3,900	1,270	POLICY CONCERNS
MARSHALL, MN	LPP	6,940	628	POLICY CONCERNS
MID-VALLEY AREA LEVEE RECONSTRUCTION, CA	LPP	17,000	2,110	POLICY CONCERNS
PORTAGE, WS	LPP	6,480	1,928	POLICY CONCERNS
ROUGHANS POINT, REVERE, MA	LPP	7,800	1,090	POLICY CONCERNS
SAN DIEGO RIVER AND MISSION BAY, CA - QUIVIRA ELEMENT 1/	NAV	2,200	300	POLICY CONCERNS
SHOAL CREEK, TX (HANCOCK CREEK)	LPP	5,970	780	POLICY CONCERNS
VIRGINIA BEACH, VA	BEC	247,300	7,175	POLICY CONCERNS

1/PRIMARY BENEFITS ARE STORM DAMAGE PREVENTION

NATIONAL ASSESSMENT OF WATER SUPPLY DEMAND AND AVAILABILITY

Senator DOMENICI. What are the goals and objectives of the study? What will the study produce and how will that product be used from a public policy perspective?

Dr. ZIRSCHKY. The overall goal is to develop a realistic and nationally consistent set of water use and availability projections to assist policy-making and investment decisions regarding the regional distribution of emerging water resources needs and problems. Areas of critical and chronic water supply shortfalls will be identified; ecosystem-based water demands will be assessed; opportunities for increasing water use efficiency will be examined; and strategies for improving the performance of existing water management systems will be formulated to guide public policy decisionmaking.

Senator DOMENICI. How will the assessment be organized and managed? Specifically what other Federal agencies will participate, and what is the estimated cost to those agencies expected to be? Will those funds be requested separately and how much is budgeted for each in the FY 1996 budget?

Dr. ZIRSCHKY. Our plan of study was designed to be self-contained in the sense that the Corps was not anticipating additional funding to be requested by other participating agencies. The Corps expects to transfer funds out of the specified budget to agencies such as the USGS and the NWS to conduct the necessary analyses for which they have expertise. Of course, we also expect the participating agencies to provide a fair amount of "in-kind" services as a normal part of their existing programmatic responsibilities and coordination requirements. We intend to work in close collaboration with the EPA, FWS, NRCS (formerly SCS), Bureau of Reclamation, professional societies, states, local entities and public interest groups and native American representatives throughout the study.

Senator DOMENICI. What agency or entity will have overall responsibility for coordinating the various agencies and interest groups participating in the study?

Dr. ZIRSCHKY. I believe that the Corps of Engineers should be assigned the principal role as lead agency and responsibility for coordinating all the study elements and the participation of agencies and interest groups for this study. We have been involved in several recent large-scale regional water resources assessment efforts, and have considerable experience in organizing multi-agency studies with emphasis on extensive public participation mechanisms.

Senator DOMENICI. It appears from the justification material supporting the FY 1996 budget funding request that, given the scope and broad involvement of diverse interest groups, that it may be hard to complete the assessment within three years. How confident is the Corps of Engineers in the \$5.5 million/3 year estimate?

Dr. ZIRSCHKY. We are confident in the cost and schedule estimate. Of course, any estimate of time and cost is subject to a degree of uncertainty. However, the purpose of this study is only to identify problems and issues, and to recommend innovative strategies for dealing with them, but the assessment will not be used to implement these approaches. Because of that, we think the degree of uncertainty is small.

Senator DOMENICI. What is the overriding justification for a Federal study of this type? Why is this not a State and local issue? Why should the Federal government be interested in the efficient management of current and future water supplies?

Dr. ZIRSCHKY. The principal reason is that, even with prospective devolution of federal responsibilities to the states for water resources

development, political boundaries cross many jointly managed watersheds and river basins and federal entities still will have a substantial role in managing their own systems in consonance with state needs. The assessment will identify emerging conflicts now, giving states and local jurisdictions time to head off the conflicts and avoid costly and time consuming litigation. Aquatic ecosystems, wetlands and estuarine areas are dependent on the piecemeal management of numerous local and state entities. The Federal government still will have a considerable regulatory role, and an investment role through grants and direct project funding. Water resources management decisions are becoming more complex as we look to improving the performance of existing systems rather than individual projects. There still is a need for a more comprehensive, multiobjective view of water resources management. Finally, only a study conducted from a uniform, comprehensive perspective can provide the degree of internal consistency required for a credible assessment of future needs on a national basis.

Senator DOMENICI. Is the objective of the assessment to provide policy makers with an assessment of potential ecosystem impacts? How do you define an "ecosystem" as it relates to this study?

Dr. ZIRSCHKY. Yes, the assessment of aquatic ecosystem impacts is one of the key objectives of this study, particularly within the context of future demands and potential strategies to resolve competing uses. The ecosystems that we will focus on are those ecological habitats that are connected to the hydrologically influenced floodplain areas, riparian zones, wetlands and estuaries, as well as instream aquatic habitat.

CORPS OF ENGINEERS FINANCIAL MANAGEMENT SYSTEM

MR. DOMENICI. We understand that the Corps of Engineers Financial Management System (CEFMS) is continuing to experience technical problems and delays. The Committee is concerned that the Corps inability to maintain schedule on this program indicates that the technical problems are larger than it has been lead to believe. Would you please comment on the advisability of continued funding for this program and provide for the record a schedule which will be firm through completion of deployment.

GENERAL WILLIAMS. It is true that we have experienced a greater number of testing and fielding technical problems and delays than we anticipated. I have directed a revision to our fielding strategy to allow time for addressing these problems prior to increasing the sites performing the Beta test. We are in the process of converting CEFMS to the latest version of ORACLE Data Base Management software. This change will address the system performance technical problems impacting our fielded sites and improve our schedule stability. These technical problems are solvable and remain the top priority of the CEFMS development team.

I encourage your continued support of the CEFMS effort to complete system testing and full scale deployment. We are on track to be prepared for the independent operational evaluation of CEFMS by Headquarters, Department of Army in July 1995, as scheduled. Upon successful completion of this evaluation and obtaining approval by the Major Army Automated Information Systems Review Council (MAISRC) in the second quarter Fiscal Year (FY) 1996, full scale deployment of CEFMS will begin.

As requested, enclosed is our deployment schedule (subject to approval of the Army MAISRC) which extends Corps-wide deployment into FY 1998.



US Army Corps
of Engineers

CEFMS FIELDING SCHEDULE

DEC-83	JUL-86	FEB-86	APR-95	MAY-95
HND (Huntsville)	WES (Wakaburg) CERL (Champaign)	SWD (Dallas)	SWF (Fort Worth)	HQSACE (Washington DC)
JUN-86	JUL-86	JUL/AUG-85	NOV-85	DEC-85
CMAISRC	DA MAISRC I & II	TEKCOM Test	POD/POH (Hawaii) POJ (Japan) POF (Korea)	CMAISRC
JAN/FEB 96				
DA MAISRC III				

Our current schedule shows CEFMS fielding to be completed in Jan 1990, this is contingent on completion of the Beta test, Army's Independent Operational test and Army MAISRC III approval. The fielding dates for each of the sites listed below will be finalized upon Army MAISRC III approval.

MAR-86	APR-86	MAY-86	JUL-86	NOV-86	FEB-87
SWA (Albuquerque)	HECSA*	SAW (Wilmington)	MRO (Omaha)	ORD (Cincinnati)	NCD (Chicago)
SWG (Galveston)	TEC*	SAS (Savannah)	MRO (Omaha)	ORL (Louisville)	NCC (Chicago)
SWT (Tulsa)	CPW*	SAC (Charleston)	MRK (Kansas City)	ORP (Pittsburgh)	NCE (Detroit)
SWL (Little Rock)	WRSC*	SAM (Mobile/SAD Atlanta)		ORM (Huntington)	NCB (Buffalo)
		SAJ (Jacksonville)		ORN (Nashville)	NCR (Rock Island)
					NCS (St Paul)
APR-87	MAY-87	JUL-87	NOV-87	JAN-88	
TAD (Worcester)	LMV (Vicksburg)	NPD (Portland)	SPD (San Francisco)	NED (Waltham)	
TAE (Frankfurt)	LMK (Vicksburg)	NPP (Portland)	SPK (Sacramento)	NAB (Baltimore)	
	LMN (Memphis)	NPS (Seattle)	SPN (San Francisco)	NAD (New York)	
	LMS (St Louis)	NPW (Walla Walla)	SPL (Los Angeles)	NAN (New York)	
	LMN (New Orleans)	NPA (Alaska)		NAO (North)	
				NAP (Philadelphia)	
				CARREL (Manover)	

* National Capital Region (NCR) sites in the Washington DC Area.

NEW HEADQUARTERS BUILDING - SOUTHEAST FEDERAL CENTER

Senator DOMENICI. What impact will the rescission of \$25,000,000 from the budget of the General Services Administration have on the construction of the new Corps of Engineers headquarters at Southeast Federal Center?

MG GENEGA. In FY 93, Congress appropriated \$50 million as partial funding for construction of the Corps headquarters. However, Public Law 103-211, the FY 94 Emergency Supplemental Appropriations Act, rescinded \$10 million, leaving a balance of \$40 million. The FY 96 budget request by GSA includes \$36.4 million which was scheduled to provide complete funding for construction of the Corps building. Consequently, the proposed rescission of \$25 million in FY 93 funds would prevent awarding the construction contract for the Corps facility but would still allow GSA to complete design. The \$25 million rescission would need to be restored by FY 97 in order to provide the total of \$76.4 million necessary to award construction as scheduled in February 1997. The funds for construction award would then come from the \$15 million remaining from FY 93, the \$36.4 million in the FY 96 request and the \$25 million restored rescission.

Senator DOMENICI. Considerable effort is on-going to reduce the size of the Federal government. Have you analyzed the need for construction of additional facilities in the face of downsizing? Can the Corps of Engineers be accommodated in facilities that become available as agencies shrink?

MG GENEGA. We are working with GSA to develop appropriate design criteria for the Corps building which has been downsized from the original proposal to house 1780 employees to a facility that can accommodate approximately 1275 employees. The Corps has not done any general analysis of Federal building needs in the National Capital Region since this is a GSA responsibility. Prior to authorization of the Southeast Federal Center project in FY 1993, GSA did an extensive analysis of the economies related to Federal ownership of facilities as opposed to leasing. This analysis indicated a Federal savings of over \$48 million net present value if the Corps moved from leased facilities into a government owned facility. GSA's recent update of this analysis

shows a net present value of \$21.7 million in savings for a government owned facility. Consequently, I believe ownership still remains more cost effective and is justified as long as it allows agencies in the National Capital Region to consolidate from leased facilities. I am not aware of any studies that have been done to indicate whether a downsized Federal government can be accommodated entirely in owned facilities or if some agencies would be forced to remain in leased facilities. Likewise, I am not aware of any studies that have been done to evaluate the impact on Washington D.C. tax revenues or building occupancy rates of a reduced Federal leasing program in the District. GSA is seeking a new lease on the Pulaski Building where we are currently located. It is a four year lease with three one year renewal options to allow flexibility for GSA to adjust their lease holdings as agencies downsize and Federal facilities become available in the Southeast Federal Center. While GSA has invested a lot in repairs and renovation of the Pulaski Building over the last few years to correct fire safety and other deficiencies, it still requires substantial investment to correct mechanical, electrical, and functional layout deficiencies which hamper its use as a modern administrative complex. Consequently, the Corps is seeking relocation to adequate, government owned facilities.

Senator DOMENICI. Which agencies have construction approved for the Southeast Federal Center? When will construction of these facilities start?

MG GENEVA. The only two agencies that have currently agreed to construction of new facilities in the Southeast Federal Center are GSA and the Corps. GSA is continuing to work with other Federal agencies such as the Justice Department and the Immigration and Naturalization Service to meet their space needs through new Federal construction at Southeast Federal Center but no firm commitments or Congressional approvals have been obtained for construction of the remaining 4.7 million square feet proposed for development. The current schedule calls for award of the construction contract on the Corps facility in June of 1997 with construction completion in January of 1999. The GSA building is currently scheduled for completion in March of 1999. GSA currently has a number of contracts on-going to complete topographic, historic, archeological and environmental investigations at the site. These contracts will detail activities necessary to document historic structures, obtain environmental clearances for sea wall modifications, and will identify asbestos, PCB's and other hazardous or toxic agents to be removed prior to building demolition and new construction. The first demolition contract is scheduled for award this summer. The proposed rescission of \$25 million for the Corps headquarters building will not affect any of these contracts, the design of the Corps building or the design and construction of the necessary supporting infrastructure at the Southeast Federal Center.

ACEQUIAS IRRIGATION SYSTEM, NEW MEXICO

Senator DOMENICI. 1) Generally

As you know, the Water Resources Development Act of 1986 authorizes the Corps to restore and preserve New Mexico's historic irrigation ditch system, otherwise known as acequias. I commend the work the Corps has done to maintain these acequias, which have proven their economic and cultural value to New Mexico and to the Nation as a whole.

Traditionally, the acequias program has been funded in the \$1 million to \$2 million range. This year, however, the Administration has budgeted only \$120,000 for the acequias program in FY 1996. I personally am skeptical that this amount of money is adequate for this important program. For example, the New Mexico commission in charge of administering the state end of the program has indicated that \$3 million will be needed.

How does the Corps respond? What is your total capability to continue work in FY 1996?

LTG WILLIAMS. The New Mexico Acequia commission has indicated that potentially \$3,000,000 will be needed to perform engineering and

design and make contract awards for construction of acequia projects, scheduled to begin in late Fiscal Year 1996, after the irrigation season. This effort would also include the scoping of future projects. However, due to budget constraints and a large unexpended carryover amount of \$1,900,000 from Fiscal Year 1995 into Fiscal Year 1996, only \$120,000 in new appropriations is requested for Fiscal Year 1996. This total program amount of \$2,020,000 will be used to complete the design and construction of four to five acequia rehabilitation projects. Reprogramming of additional funds could be considered for use for design and contract awards in late Fiscal Year 1996, if needed, for those additional acequias that have signed loan agreements with the state of New Mexico.

ACEQUIAS IRRIGATION SYSTEM, NEW MEXICO

Senator DOMENICI. Acequias cost-share problems

The New Mexico State Acequia Commission, however, has alerted me to what it sees as a problem with the acequia program. Under the current system, the Corps will receive an inquiry for a project from an acequia. In order to come up with a cost estimate for the project, the Corps will perform preliminary scoping work, which often costs in the tens of thousands of dollars. Before the acequia signs a final loan agreement with the state for that project, however, the acequia can back out of the project, leaving the Corps to absorb those preliminary scoping costs. The Corps absorbs those costs by passing them on to the rest of the acequias in the program, even though they had nothing to do with that particular project.

This situation occurs because the 1986 Water Resources Development Act, as currently written, requires that all costs of any work done undertaken pursuant to the Act be cost-shared. The State Commission believes that this situation is unfair to its members, and therefore has asked that the Corps be given statutory authority to fund fully all activities incurred up to the time the loan agreement is executed between an acequia and the State.

What are the Corps' views about this proposed statutory change?

LTG WILLIAMS. Fully Federally funding the up front scoping activities would relieve the other acequias of the burden of absorbing the cost of another association's failure to proceed in the program. This proposal would be consistent with the Corps' activities on the Continuing Authorities Program and General Investigations Reconnaissance Program, where the scoping activities are completely Federally funded.

COCHITI WETFIELDS SETTLEMENT

Senator DOMENICI. As you know, seepage from the Cochiti Dam resulted in considerable damage to lands in Cochiti Pueblo. Last year I was able to secure a \$10.5 million appropriation that allowed the Corps to fulfill a negotiated settlement between the Corps and the Pueblo to repair those lands. I understand that other monies from the Corps budget were reprogrammed to meet the \$13 million cost of the settlement.

What is the status of the remediation of Cochiti Pueblo's damaged lands?

LTG WILLIAMS. The construction of the agricultural subdrain system at Cochiti Pueblo was completed in September 1994. Funds for past damages to the Pueblo were provided in FY 1994. In addition, operation and maintenance funds have been transferred to the Bureau of Indian Affairs in FY 1994. The project was formally turned over to the Bureau of Indian Affairs on March 28, 1995. The system is performing very well and reclamation of the fields has been initiated by the Cochiti Pueblos.

SPECIAL FLOOD HAZARD AREA

Senator DOMENICI. In 1977, the Corps issued a map outlining which parts of the city of Carlsbad were in the "special flood hazard area". In 1994, the Corps issued a second map which doubled the amount of land in the special flood hazard areas.

1. What methodology does the Corps use for determining which property is in the flood hazard area in a particular community?

LTG WILLIAMS. The Corps, as a study contractor for the Federal Emergency Management Agency, must follow the guidelines incorporated in Federal Emergency Management Agency's publication, Flood Insurance Study Guidelines and Specifications for Study Contractors, dated March 1993.

Senator DOMENICI. 2. How common is it for the Corps to issue a map for a community in which the area in the special flood hazard zone doubles?

LTG WILLIAMS. In our experience the "doubling" of an area in the special flood hazard zone, from one study to the next is fairly uncommon. However, there are many instances in which the floodplain increases from one study to the next due to changes in hydrological data, better mapping, or changes in watershed development.

Senator DOMENICI. 3. What was unique about Carlsbad that created the situation where the amount of property in the flood hazard area increased two-fold in under a twenty-year period?

LTG WILLIAMS. The major difference between the 1977 Flood Insurance Rate Map and the maps recently submitted is the flooding due to flow from Hackberry Draw. Flow within Hackberry Draw is obstructed by an abrupt diversion south at the Southern Canal. This terrain is very flat, allowing water to spread over a large area. In this case, "doubling" the size of flood hazard areas. The earlier 1977 Flood Insurance Study did not reflect flooding carried by flows from Hackberry Draw.

Senator DOMENICI. 4. Will the Corps agree to work with FEMA and Carlsbad during Carlsbad's appeal to assist in reaching an agreement on an appropriate map?

LTG WILLIAMS. Yes, Sir, the Corps has submitted the technical data and draft maps to the Federal Emergency Management Agency. If there is a need for any available supporting data to assist in resolving the appeal or protest, the data will be provided by the Corps.

QUESTIONS SUBMITTED BY SENATOR MARK O. HATFIELD

COLUMBIA BASIN SALMON

Senator Hatfield. Please give the Committee an update on your progress on the fish bypass program.

General Genega. Programmed construction on fish bypass facilities is on schedule and in accord with the National Marine Fisheries Service's Biological Opinion on Operation of the Federal Columbia River Power System issued March 2, 1995. Operating screens are now in place on all mainstem dams except for The Dalles. The most significant remaining scheduled construction is for extended length screens at Lower Granite, Little Goose, and McNary dams. Construction contracts for that work were awarded earlier this year and we expect to have most of the longer screens operational for the 1996 juvenile salmon outmigration. Although we are completing design for a screened bypass at The Dalles dam, we are deferring construction pending the outcome of prototype testing of new surface bypass technology. The Mitigation Analysis, the study of additional measures to improve passage conditions, continues with the emphasis now on surface collection and bypass concepts. We are in the process of evaluating program changes to implement specific measures in the Biological Opinion which are not in our current program.

Senator Hatfield. What work will be accomplished during FY 1995 and FY 1996 on surface collection and bypass facilities? On which facilities, including The Dalles project, will surface bypass facilities be installed for testing or direct application? What is the projected schedule for all these activities?

General Genega. Both Portland and Walla Walla districts are engaged in aggressive programs to develop surface collection and bypass facilities. For the three lower Columbia projects, fish behavioral, hydraulic model and alternative design studies are underway, leading to development of designs and construction of advanced prototypes at each of the projects. At The Dalles project, surface bypass prototype devices for both the powerhouse and the spillway will be constructed and installed in 1995 and tested in 1995 and 1996. We expect to test prototype devices at Bonneville and possibly John Day in 1996. On the Snake River, development of surface bypass technology is focused on Ice Harbor and Lower Granite dams. Collector concepts are being tested at Ice Harbor in 1995. At both projects, studies and design are underway for prototype testing in 1996.

Senator Hatfield. What funding level is in your FY 1996 budget for surface bypass facilities and testing?

General GENEGA. The President's FY 96 budget contains about \$15 million for development of surface collection and bypass technology. This work is a part of the Mitigation Analysis subproject of the Columbia River Juvenile Fish Mitigation project. The Mitigation Analysis is budgeted at \$23,900,000.

Senator Hatfield. I know that the Corps has been, and continues to be, under tremendous pressure to show leadership in the salmon recovery effort, and to push forward with dam modifications and other measures. Corps employees in Portland and Walla Walla have been stretched to the limit over the past two or three years. In light of the very real constraints resulting from too much work and too few employees, what thought has the Corps given to contracting with private industry for the fish bypass and other work?

General Genega. We have indeed given a great deal of thought to the use of the private sector to implement the salmon program, and a number of actions in this regard have already been taken. Of course, we also need outside help to augment our limited manpower, as you suggest. We expect, for example, to contract with architect/engineer firms and consultants for up to 70 percent of the design and 100 percent of the construction of new fish facilities. We must tap talent and creativity from sources outside the Corps for the technical challenges that are before us. For instance, we have engaged other

agencies and consultants in several brainstorming sessions to develop ideas for surface bypass.

Senator Hatfield. I understand that Mid-Columbia PUD's are aggressively testing surface bypass facilities at two of their projects, Wanapum and Rocky Reach. What significance is this to the Corps? Why is it the Corps is not leading the way in the development of this technology?

General Genega. The Corps has worked and continues to work with the consultants to the mid-Columbia PUD's to brainstorm ideas and share results of the studies. The development of the technology is continuing on a number of fronts at the Corps dams on the lower Columbia and Snake projects and at PUD dams. Prototype devices are being installed and tested at Corps projects. Currently, tests are also being conducted at the PUD dams. The pooling of information from all testing programs, including a substantial hydraulic model development and testing program at WES, is intended to develop this technology as rapidly as possible. The Corps is also testing the potential for light/sound technology and other guidance methodologies in conjunction with surface bypass, which, if feasible, could ultimately become an important component in the effectiveness of bypass systems. We believe the Corps is one of the leaders in the development and future deployment of these systems.

Senator Hatfield. Could the installation and testing of surface bypass systems be speeded up if contractors were used to a greater extent? Could contractors do the work more cheaply than the Corps?

General Genega. We believe that our current plan for contracting out a high percentage of the work will maximize the opportunity for time and cost savings resulting from the use of the private sector.

Senator Hatfield. What is the current schedule for installing PIT tag detectors at the projects?

General GENEGA. Sir, PIT tag detectors are scheduled to be installed at John Day dam by 1997 and at Bonneville dam by 1999. To-date, PIT tag detectors have been installed in the juvenile fish collection/bypass facilities located at the Lower Granite, Little Goose, Lower Monumental and McNary Dams.

Senator Hatfield. Your FY 1996 budget request for the Columbia River Juvenile Fish Mitigation project includes \$23.9 million for your ongoing "Mitigation Analysis." Please provide a detailed description of how these funds will be spent in FY 1996.

General GENEGA. Our budget request for the Mitigation Analysis includes about \$15 million for the feasibility study of surface bypass technology which includes the construction and testing of prototype designs. I will provide for the record a description of the budgeted Fiscal Year 1996 work items.

(The information follows.)

MITIGATION ANALYSIS
FISCAL YEAR 1996 ACTIVITIES

Surface Bypass Studies and Prototypes	\$15,000,000
John Day Extended Screens Evaluation	1,200,000
Gas Supersaturation Abatement Studies	1,200,000
Turbine Passage Studies	1,400,000
Snake River Reservoir Drawdown Studies	1,200,000
Adult Passage Studies	900,000
Miscellaneous Biological Baseline Studies	3,000,000
TOTAL	\$23,900,000

Senator HATFIELD. How does the Corps decide what passage measures to implement on an annual basis?

General GENEGA. The Corps' annual Fish Passage Plan incorporates requirements in the National Marine Fisheries Service biological opinion on Operation of the Federal Columbia River Power System. We also take into consideration the Northwest Power Planning Council's Fish and Wildlife program. The content of our plan is coordinated with the State and Federal fish and wildlife agencies and Indian tribes. While the Corps brings its technical expertise to the table, we rely on the National Marine Fisheries Service for the appropriate biological measures. In this regard, the Biological Opinion issued by NMFS on 2 March 1995, and the associated Corps Record of Decision represent the federal framework for the Corps' salmon program.

Senator HATFIELD. I understand that Oregon and the tribes do not actively participate in the Fish Passage Development and Evaluation Program. What is the nature of their concerns with the FPDEP?

General GENEGA. Representatives from both Oregon and the tribes do participate. In fact, we are currently working with the Columbia River Inter-Tribal Fish Commission to fund two of their study proposals. A concern raised in the past was about the final decision authority for selecting FPDEP studies, which of course must rest with the Corps. Another concern is our difficulty in entering into sole source contracts with the states and tribes. We feel that we are successfully addressing these concerns.

Senator HATFIELD. Under the mid-Columbia FERC proceedings, the states, tribes, and the PUD's are aggressively implementing prototype surface bypass systems at Wanapum and Rocky Reach dams. I understand that these prototype efforts enjoy the concurrence of state and tribal fishery managers. The mid-Columbia process involves dispute resolution and consultation procedures agreed to by the PUDs, FERC, and the fishery managers.

General GENEGA. Yes sir, the Corps is also aggressively evaluating surface collection with field studies at Lower Granite, Ice Harbor, John Day, The Dalles, and Bonneville dams. Several brainstorming meetings and workshops were held with the fish and wildlife agencies, tribes, public utility districts, and many others to identify surface collection study options. We are coordinating our effort with the PUD's.

Senator HATFIELD. Wouldn't such dispute resolutions procedures be preferable for the mainstem Columbia and Snake Federal projects? Wouldn't a dispute resolution mechanism such as that employed in the mid-Columbia assist the Corps in meeting its obligations under Section 4(h)11 of the Northwest Power Act?

General GENEGA. Yes, sir. We agree that a dispute resolution mechanism is important. In this regard, we are working with the Regional Director of NMFS to establish a regional forum for coordination of fish studies. The intent is to provide a regional perspective on anadromous fish passage evaluations including dispute resolution.

Senator Hatfield. In FY 1995, this Committee provided an additional \$5 million appropriation to implement Lower Snake River Compensation Project propagation measures including acclimation and outplanting facilities. Have those propagation facilities been constructed?

General GENEGA. Sir, the propagation facilities have not been constructed because of the need for extensive regional coordination of project scope and design with Indian Tribes, state and federal agencies.

Senator Hatfield. What is the schedule for completion and operation of the facilities?

General GENEGA. Design will continue in Fiscal Year 1996. At this time the schedule for completion and operation of the facilities is still being determined.

Senator HATFIELD. The Corps has investigated the use of video fish counting techniques at mainstem Snake and Columbia River dams. I understand that such techniques are less expensive and more accurate, and that they are being successfully implemented at Rock Island Dam, operated by Chelan PUD. When will the Corps implement video fish counting procedures at all Columbia and Snake River dams?

General GENEGA. The Corps' primary purpose in counting adult salmonids is to have a real-time verification that the passage facilities are functioning properly. The fish and wildlife agencies and tribes also rely on the count data for their management purposes. While the video counting technology may eventually suit our purposes, no system is currently available that will fully satisfy fisheries management requirements, particularly when the water turbidity levels are high and visibility is limited. Consequently, implementation of video counting is not scheduled for our projects.

COLUMBIA RIVER CHANNEL DEEPENING PROJECT

Senator HATFIELD. What action is being taken by the Corps to reduce the time needed to review feasibility studies at the Division and Washington, D.C. levels? How will these actions modify the schedule for the Columbia River channel deepening feasibility study?

General Genega. As part of our continuing efforts to streamline and improve project implementation, we have developed a revised review process to eliminate unnecessary redundant reviews which have contributed to delays in processing feasibility studies. Under our revised review process, technical review will be accomplished at the District level and policy compliance review will be accomplished at the Headquarters level of the Corps. This revised process will eliminate redundant reviews by multiple levels of the organization and clearly establish which level of the organization is responsible for technical and policy adequacy of planning reports. This new review process will be implemented on 1 October 1995 and will be applied to the Columbia River Channel Deepening Study. The Corps has also recently completed an analysis of the implementation requirements for feasibility studies. This analysis had as its objective identifying opportunities to streamline the feasibility study process and to therefore eliminate or reduce steps that do not add value to the report preparation and approval process. This study effort has identified several opportunities to streamline the feasibility study process including the review process. These steps will be applied to the Columbia River Channel Deepening Study and should also contribute to improvements in the review process for that study.

Senator Hatfield. Leaders in the Corps have mentioned the desire to cut the time required to complete feasibility studies by as much as one half. What action is being taken to realize this goal? How will this change affect the schedule for the Columbia River channel deepening study?

General Genega. Sir, the objective of the Corps analysis mentioned above was to review current statutory, administrative, and procedural requirements for preparing feasibility studies with the objective being to reduce unnecessary or duplicative reporting requirements. An action plan has been developed which involves streamlining feasibility report requirements where possible without adversely affecting report quality. Any opportunities to incorporate the recommendations contained in this analysis into the schedule for the Columbia River Channel Deepening study will be coordinated with the local sponsor for the study - the Port of Portland. The current schedule developed for the Columbia River Channel Deepening Study is the result of exhaustive review by national experts in channel deepening studies in coordination with the local sponsor and the resources agencies in the Pacific Northwest. As we proceed with the study we will continuously explore opportunities to reduce that schedule further.

Senator HATFIELD. What specific actions has the Corps taken in conjunction with other Federal agencies to expedite the Columbia River Deepening Feasibility Study? Please provide copies of any written communication for the hearing record.

General GENEGA. Sir, The Corps has worked closely with the resource agencies in the reconnaissance study, development of the Initial Project Management Plan and in the study itself. Much of the work has been through continued co-ordination with staff level personnel in the different agencies. Additionally, General Harrell and has initiated formal discussions with the regional agency heads to ensure that upper management places emphasis on this study and looks for opportunities to eliminate any duplication of efforts resulting from overlapping responsibilities. These discussions will also look for cost and time saving measures. I will provide for the record a copy of recent correspondence as requested.

(The information follows.)

RECENT CORRESPONDENCE ON COLUMBIA RIVER DEEPENING FEASIBILITY STUDY

Portland District Letter sent to the following addresses:

William Stelle, Regional Director
National Marine Fisheries Service
7600 Sand Point Way, NE
Bin C15700
Seattle, Washington 98115

Michael Spear, Regional Director
U. S. Fish & Wildlife
911 NE 11th Avenue
Portland, Oregon 97232

Chuck Clarke, Director
Environmental Protection Agency
Region 10
1200 Sixth Avenue, WD-128
Seattle, Washington 98101

Please reference General Harrell's letter, dated March 15, 1995, regarding your agency's continued participation in the Columbia River Channel Deepening (CRCD) and Dredge Material Management studies. The schedule for these studies presents a challenge in resourcing and execution. The reconnaissance report for CRCD, completed in 1990, was successful largely due to the assistance provided by the resource agencies. The reconnaissance report recommended a detailed feasibility study be undertaken to define the preferred plan. The feasibility study initiated in July 1994, is scheduled for completion in approximately five years. The non-Federal sponsors for this project are the Ports of Portland, Kalama, Longview, St. Helens, Vancouver, Astoria, and Woodland. The sponsors are responsible for 50% of the study costs and 35% of the construction costs.

Portland District has the lead for completing and coordinating the CRCD and DMMS studies including the NEPA documentation. Our agencies each have significant areas of over-lapping interests on the Columbia River. For example, the Salmon Recovery and the National Estuary program could potentially impact the Corps' on going maintenance and Channel Deepening projects. I feel that there may be several areas where we can share information obtained from our respective work. In these times of decreasing Federal resources, cooperatively working together and understanding each other's goal could reduce overall budgets. I would like to discuss strategies for accomplishing our individual goals without adversely affecting the efforts of the other agencies. I recognize the importance of continuing agency coordination and believe that your cooperation will help us be successful.

Please contact Laura Hicks, Project Manager at (503) 326-6136, for additional information. Contact Diana Sorenson at (503) 326-6000 with dates you would be available to meet during the month of May. She will compile the responses and will confirm the date and the location of the meeting.

Sincerely,
Timothy L. Wood
Colonel, U.S. Army
Commanding

WATER RESOURCES DEVELOPMENT ACT BILL

Senator HATFIELD. For the projects included in last year's ill-fated Water Resources Development Act bill, please provide the following information relating to feasibility studies:

- Start date
- Original scheduled completion date
- Actual completion date
- Original initial cost estimate in the Feasibility Cost Sharing Agreement
- Final cost of the completed study

General GENEGA. Sir, Coos Bay, Oregon, Deep Draft Navigation was included in the ill fated Water Resources Development Act Bill of 1994. The feasibility study was initiated in January 1989. The original scheduled completion date was April 1991 and the original initial cost estimate in the Feasibility Cost Sharing Agreement was \$576,000. The actual completion date based on the Division Engineer Public Notice was 18 February 1994 at a final cost of \$981,875.79.

Supplemental Information:

The feasibility study phase completion delay and the study cost increase was due to the following:

The Feasibility study was initiated in January 1989 and the draft feasibility report was submitted for review on 30 July 1990. Comments were received on 14 September 1990. The major issues were related to the baseline cost estimate (BCE) and timber resource availability due environmental considerations. After resolution of the BCE issues and provision of additional sponsor funding, the study was resumed. Additional documentation and analysis was conducted to update the commodity projections in order to fully evaluate the project's economic viability. The impact of the preservation of the Northern Spotted Owl habitat and the state of Oregon's ban on log exports received further evaluation in order to establish the availability of future timber product exports. This documentation, verifying that the project is economic justifiable, is included in the final Feasibility report, dated January 1994. The feasibility report was submitted to Congress on 6 September 1994.

EFFICIENT USE OF CORPS DREDGES

Senator HATFIELD. Currently, the four Corps hopper dredges are limited in the days they work to 180 annually, in order to provide an extra 7.5 million cubic yards of O&M dredging work to private dredgers that was directed by the Congress. Wouldn't it be more efficient in utilizing your Corps dredges if this special set-aside were lifted, thus allowing the Corps dredges to be more efficient?

General WILLIAMS. Yes, however, Public Law 95-269 requires the Secretary to have dredging and related work done by contract if he determines private industry has the capability to do such work and it can be done at reasonable prices and in a timely manner. The industry has demonstrated that this additional 7.5 million cubic yards of hopper dredge work can be performed at reasonable cost and in a timely manner. While operation of Corps dredges for more than 180 days annually would improve their efficiency, there is not sufficient hopper dredging work available to warrant more than 180 days operation for each Corps hopper dredge.

Senator HATFIELD. As you evaluate the efficiency of the Corps hopper dredge fleet, wouldn't this give you a more accurate picture of just how efficiently the Corps dredges could operate, unlike now when one hand is tied behind their back?

General WILLIAMS. Yes sir, however, the current evaluation of the efficiency of Corps hopper dredge operations is focused on cost effective operations based on the current workload which takes into account the reduction of 7.5 million cubic yards of hopper dredge work.

REDUCED COMPETITION FOR DREDGING

Senator HATFIELD. In the Northwest, I understand that a couple of years ago Grays Harbor, Washington had two private dredging companies bid on the Corps O&M work. The next year, these two companies joined to bid as a joint venture for the work. Did this practice trouble the Corps?

General WILLIAMS. Any reduction in competition is cause for concern. This joint venture bid was evaluated and found to be acceptable.

Senator HATFIELD. Can formation of a joint venture by former competitors be a signal of practices which deserve close scrutiny by the Corps?

General WILLIAMS. Yes, in a bidding climate where there are a minimum number of potential bidders, joint ventures can represent a problem that could require additional oversight.

Senator HATFIELD. Was any extra precaution taken as a result of this?

General WILLIAMS. No additional precautions were taken.

Senator HATFIELD. Please provide a detailed breakdown of the contract costs for the year prior to this two-year period I described above, along with the year after the joint venture did the work.

General WILLIAMS. I will provide that for the record, Mr. Chairman.
[The information follows:]

GRAYS HARBOR HOPPER DREDGE CONTRACT INFORMATION

<u>Fiscal Year</u>	<u>Government Estimate</u>	<u>Winning Bid</u>	<u>Contractor</u>
1991	\$1,808,000	\$1,495,000	Manson
1992	\$3,285,500	\$3,940,000	Joint Venture Great Lakes/Manson
1993	\$3,663,500	\$4,288,000	Joint Venture Great Lakes/Manson
1994	\$1,820,000	\$1,478,500	Great Lakes
	\$1,968,000	\$1,920,000	Manson
	\$3,269,000	\$3,730,000	NATCO Limited Part.

DREDGING SUBCONTRACTED

Senator HATFIELD. In another instance, at Coos bay, Oregon, I am told that a winning private dredging contractor declined to do the work itself, but subcontracted with the losing bidder to perform the O&M dredging. Obviously, the losing bidder-- later the subcontractor-- had submitted a higher bid and lost the job. Although this instance did not cost the Corps any additional money, is this evidence of competition?

General WILLIAMS. While the concept of subcontracting work to the losing bidder appears unusual, the practice is not unique in the dredging industry. The subcontracting process mentioned is not necessarily an indication of lack of competition.

Senator HATFIELD. Did it trouble you or your colleagues in the General Counsel's office?

General WILLIAMS. While any aberration in the normal bidding and contracting process can be cause for concern, this particular action did not have sufficient justification to warrant extraordinary evaluation.

HOPPER DREDGES -- SINGLE CONTRACT BIDS

Senator HATFIELD. Is it true that in New Orleans District in FY 93 and FY 94, 12 of 13 O&M hopper dredging contracts were awarded after the Corps had received only one bid for the work? How does this demonstrate adequate competition?

General WILLIAMS. Actually, 13 of 14 O&M hopper dredging contracts were awarded after the Corps had received only one bid for the work. While additional bidders would offer a better competitive climate, the single bids were all within the awardable range of the Government Estimate.

Senator HATFIELD. Please provide our subcommittee with details about these contracts, including any which exceeded the Corps cost estimate for the work.

General WILLIAMS. Mr. Chairman, all 13 contracts exceeded the Government Estimate. I will provide the details for the record.
[The information follows:]

NEW ORLEANS DISTRICT HOPPER DREDGE CONTRACTS WITH ONE BID

<u>Bid Date</u>	<u>Government Estimate</u>	<u>Winning Bid</u>	<u>Winning Bidder</u>
	\$	\$	
03/09/93	4,256,800	4,849,712	NATCO Limited Partnership
03/10/93	2,424,500	2,977,725	NATCO/gulf Coast JV
05/02/93	2,601,100	3,248,330	Gulf Coast Trailing Co.
07/06/93	2,136,300	2,637,005	Gulf Coast Trailing Co.
08/24/93	2,266,000	2,351,030	Gulf Coast Trailing Co.
12/14/93	7,150,230	7,894,488	NATCO Limited Partnership
01/04/94	2,548,550	2,928,420	NATCO Limited Partnership
04/12/94	5,015,950	6,093,875	NATCO/gulf Coast JV
04/20/94	2,932,740	3,139,585	NATCO/gulf Coast JV
05/11/94	2,647,550	3,035,266	NATCO Limited Partnership
05/26/94	2,661,600	3,132,000	Bean Dredging Corp.
07/06/94	2,262,900	2,668,860	Gulf Coast Trailing/NATCO JV
08/16/94	2,041,185	2,389,120	Gulf Coast Trailing Co.

HOPPER DREDGES -- BIDS EXCEEDING GOVERNMENT ESTIMATE

Senator HATFIELD. Nationwide, can you please supply this subcommittee with a list of private dredging company O&M hopper dredge contracts awarded by the Corps when the winning bid exceeded the USG estimate by more than 10%, and where there was only one responsible, responsive private bidder? In other words, I am asking for a list of the contracts where there was only one bidder, and the winning bid was between 110% and 125% of the Corps estimate. Please provide the contract amount, the original Corps estimate, and the percentage by which the contract exceeded the estimate. Please provide as many specifics as possible for any of these contracts where the winning bids were between 120% and 125% of the Corps estimate.

General WILLIAMS. I will provide that for the record, sir.
[The information follows:]

HOPPER DREDGE CONTRACTS WITH 1 BID
(Amounts in Dollars)

<u>Government Estimate</u>	<u>Winning Bid</u>	<u>Dif.</u>	<u>Winning Bidder</u>
\$	\$	%	
4,153,280	4,584,020	110	NATCO/Gulf Coast - Joint Venture
2,164,940	2,592,010	120	NATCO/Gulf Coast - Joint Venture
2,424,500	2,977,725	123	NATCO/Gulf Coast - Joint Venture
2,601,100	3,248,330	125	Gulf Coast Trailing Company
2,266,000	2,351,030	104	Gulf Coast Trailing Company
2,136,300	2,637,005	123	Gulf Coast Trailing Company
4,256,800	4,849,712	112	NATCO Ltd. Partnership
7,150,230	7,894,488	110	NATCO Ltd. Partnership
5,015,950	6,093,875	121	NATCO/Gulf Coast - Joint Venture
2,548,550	2,928,420	115	NATCO Ltd. Partnership
2,932,740	3,139,585	107	NATCO/Gulf Coast - Joint Venture
2,647,550	3,035,266	115	NATCO Ltd. Partnership
2,661,600	3,132,000	118	Bean Dredging Company
2,262,900	2,668,860	118	NATCO/Gulf Coast - Joint Venture
2,041,185	2,389,120	117	Gulf Coast Trailing Company
2,922,608	3,592,800	123	NATCO/Gulf Coast - Joint Venture

HOPPER DREDGES -- LOWER AWARDBLE CEILING

Senator HATFIELD. Would it help the Corps to save money if the ceiling under which the Corps was allowed to award a contract to a private dredging contractor was lowered from 125% of the estimate to 110%? What would be the drawbacks to making such a change? In addition to the obvious savings, what would be the advantages?

General WILLIAMS. The limit of 125 percent which applies to all Civil Works activities, not just dredging contracts, is a statutory requirement. While our goal is always to achieve savings, it would not help to lower the awardable ceiling from 125% to 110% of the Government estimate. The current Government estimate does not include profit, and part of the allowable percentage accounts for this. If the ceiling were lowered, the estimate would probably have to include an additional amount for a fair and reasonable profit. There does not appear to be any advantage in lowering the ceiling.

HOPPER DREDGES -- CONTRACT BIDS

Senator HATFIELD. In the past three years, what has been the average number of bids per project for O&M work performed by private hopper dredges, on both a national and a district-by-district basis?

General WILLIAMS. The average number of bids per contract on hopper dredge work for the last three years has ranged between 1.3 and 3.4 bids per contract on District contract procurements, while the three-year national average was 2.5 per contract. I will provide a District breakdown for the record.

[The information follows:]

AVERAGE NUMBER OF BIDS PER HOPPER DREDGING CONTRACT

<u>District</u>	<u>Average Number of Bids Per Contract</u>
New Orleans	1.3
New York	2.5
Norfolk	2.3
Philadelphia	2.5
Buffalo	3.4
Detroit	2.9
New England	2.0
Portland	2.8
Seattle	2.0
Charleston	2.7
Jacksonville	2.3
Mobile	2.9
Savannah	3.0
Wilmington	2.9
San Francisco	2.4
Galveston	2.0
National Average	2.5

HOPPER DREDGES -- PLAN TO LOWER CREW COSTS

Senator HATFIELD. We have heard general comments about your understandable interest in lowering crew costs for the four Corps-owned hopper dredges. Can you please tell the Committee what guidelines you are using (or used) to develop a plan to lower crew costs?

General WILLIAMS. The criteria for crew reduction options includes consideration of impacts to employees, vulnerability of Corps dredges to be responsive to unforeseen dredging requirements, maximizing productivity, customer requirements, and potential risk.

Senator HATFIELD. Can you explain how these steps will not hurt the ability to respond to emergencies-- where the Corps dredges have such a fine record?

General WILLIAMS. Yes sir, the crew options being considered have addressed the potential impact of emergency dredging requirements that may extend the dredging period of a dredge. Crew flexibility to be responsive to these emergency situations has been included.

DREDGES -- DISTRIBUTION OF WORK

Senator HATFIELD. Please explain the process by which different dredging jobs are divided into ones done by the Corps fleet and jobs to be awarded to the private fleet. Are these decisions based at all on the capacity and availability of private dredges?

General WILLIAMS. There is no single process by which dredging jobs are divided into Corps dredging and industry dredging. Generally, the projects performed by Corps dredges represent channels with erratic shoaling that is difficult to describe in a contract specification, some projects are performed by Corps dredges and/or industry dredges, while some projects are almost exclusively advertised for industry.

COOS BAY CHANNEL DEEPENING

Senator HATFIELD. As you are aware, I have a keen interest in the proposed channel deepening project at Coos Bay, Oregon. In an area of my state hit hard by tough economic times, this project offers the region a chance to diversify its economy. The project is included in the proposed Water Resources Development Act of 1995. My question presumes that this legislation might be enacted -- as I hope it will be. Will you please provide the committee with estimates of the construction funding the Corps could utilize in FY 96 to begin construction of the Coos Bay harbor deepening project.

General GENEGA. Sir, if the project is authorized in Water Resources Development Act of 1995, The Corps can budget for a FY 1997. \$7.1 million construction new start. The federal share would be \$5.2 share, and the non-federal \$1.9 million. The sponsor, the International Port of Coos Bay, has their share of the funding required for payments during construction.

FLOOD CONTROL PROJECTS

(22) MR. HATFIELD. Dr. Zirschky, I have heard reports that the proposed change in the Corps mission calling for transfer of major flood control responsibilities to the states is being reviewed within the Corp and OMB, and may well be changed. Is such a review underway?

Dr. ZIRSCHKY. The announced proposal that the Corps of Engineers flood control program be limited to projects of national significance remains the policy. However, the criteria for determining national significance is being revisited. A variety of alternatives is being examined and we would very much like to consider the views of the Congress in the reanalysis. If you or the Subcommittee have alternatives that should be considered, please provide them to us at your earliest convenience.

(23) MR. HATFIELD. If the current plan to transfer major flood control responsibilities to the states is implemented fully, what are the expected annual budget savings to the Corps?

Dr. ZIRSCHKY. The policies announced with the budget have an estimated savings for the five year period, 1996 to 2000, of \$960 million. This estimate covers all parts of the Corps program that would be turned over to state and local government. No estimate has been made of the annual savings due to flood control upon full implementation. However, to give this a perspective in Fiscal Year 1993, the expended about \$1.01 billion for flood control activities, \$605 million for new work and \$405 million for maintenance.

MR. HATFIELD. If you revise or scrap the proposed changes in the flood control program, so that these expected budget savings are not realized, will the announcement of any changes or abandonment of this initiative be accompanied with a revised savings target for the Corps?

Dr. ZIRSCHKY. In view of the current deficit situation, I do not foresee a change to the required savings that must be found from the Corps program.

MR. HATFIELD. If your target saving level is not lowered, what will the impact be on other Corps programs?

Dr. ZIRSCHKY. Other or all programs would have to be modified in some manner to achieve the necessary savings. There is a range of choices, stretch out all studies and projects and overall reduce the level of maintenance of our existing projects or more selectively find programs that can be terminated.

BEACH REPLENISHMENT

(24) MR. HATFIELD. The Corps proposes termination of its beach replenishment program. I will say that all communities with beaches where the Corps has helped in their restoration can point to tourists who arrive from states far away from the local area-- and cite this as evidence of national benefits from retaining the Federal role in at least some of the beach replenishment program.

Is the Corps or OMB considering changes in your initiative from the plans you announced originally? In other words, are you moving ahead with that, or is it also under further review?

Dr. ZIRSCHKY. No change in the proposed policy for shore protection is being considered at this time.

MR. HATFIELD. What are the expected annual savings if the Corps beach replenishment initiative is implemented?

Dr. ZIRSCHKY. The savings in the five year period are estimated to be . This is based upon new projects that would not be undertaken. Annual savings of up to \$50 million may be realized in the future after the nourishment period specified in existing agreements has expired.

MR. HATFIELD. If you decide to change this to maintain a greater Federal role, will this be accompanied by a reduction in your savings target, or will you be expected to look elsewhere in the Corps to find the "lost savings"?

Dr. ZIRSCHKY. In view of the current budget deficit I do not foresee a change to the savings required to be found from the Corps program.

PHASE OUT OF PORT MAINTENANCE

Senator HATFIELD. I have a particular interest in the issue of smaller port O&M, as your proposed changes will have a devastating impact in many of the ports in my state. As I understand the list of ports and channels on your "hit list," not all of them are dredged on an annual basis. Am I correct?

General WILLIAMS. Mr. Chairman, I assume you are referring to a table we furnished at the House hearing on fiscal year 1996 appropriations for Energy and Water Development. That table listed those harbors that handle little or no commercial traffic and, therefore, are not expected to yield revenues to the Harbor Maintenance Trust Fund (HMTF). Many of the projects on the list are not dredged on an annual basis primarily because depths and widths remain adequate for current usage through the years when dredging is not performed.

Senator HATFIELD. Please provide the subcommittee with a list of those ports and channels on your hit list, marking those which are not dredged on an annual basis, and providing the average annualized dredging cost for each.

General WILLIAMS. Our records are based on total maintenance costs per project without a breakout for dredging. Nevertheless, the work at a large majority of the projects is entirely dredging, including supporting costs for plans, specifications, and contract administration. However, there are some projects that periodically require repairs to jetties, breakwaters and seawalls. I will provide, for the record, a table of overall maintenance expenditures as shown in our records beginning with Fiscal Year 1977.

[The information follows:]

Senator HATFIELD. Please provide us with a breakdown by port and/or channel of the annual savings from termination of small port dredging.

General WILLIAMS. Mr. Chairman, the historical average annual expenditures is \$55.5 million for the overall 501 projects that we have currently identified. Our FY 1996 budget request is \$71 million for 111 of those projects that are presently in need of maintenance. I would say that, once the transfer of small port maintenance is accomplished over a three year period, beginning in FY 1998, the annual savings would be somewhere between the historical average and the FY 1996 amount, or approximately \$63 million. For a project-by-project breakdown, the best estimate of annual savings would be equal to the average annual maintenance cost for each of the ports listed in my response to your previous question. Obviously, any estimate would be subject to national, regional and local fluctuations in the economy and the current competitive posture of dredging resources. An additional savings will be a reduction in the cost for Project Condition Surveys, which are not recorded on a project-specific basis if that is the only activity performed in any given year.

HARBOR PROJECTS PROPOSED TO BE TURNED OVER TO NON-FEDERAL INTERESTS
(Subject to Revision as Additional Data Become Available)

State	Project Name **	Last Year of Recorded Expenditures For Maintenance	Number of Years Funded FY 1977-1994	Average Annual Expenditure FY 1977-1994 (\$000 *)	FY 1996 Budget (\$000)	Remarks
AL	Bayou Coden AL	1994	15	95	231	
AL	Bayou Labatre AL	1994	18	222	455	
AL	Bon Secour River AL	1993	15	71	551	
AL	Dauphin Isle Bay AL	1994	18	139	252	
AL	Dog And Fowl Rivers AL	1994	9	117	505	
AL	Fly Creek AL	1994	12	46	249	
AL	Perdido Pass Channel AL	1993	17	406	350	
AK	Bethel Small Boat Harbor AK	1993	5	20		
AK	Cordova Harbor AK	1992	4	40		
AK	Craig Harbor AK	1994	5	7		
AK	Crescent Bay Harbor, AK					1/
AK	Dillingham Harbor AK	1994	18	533	599	
AK	Douglas Harbor AK	1980	3	4		
AK	Dry Pass AK	1983	2	9		
AK	Egegik River AK	1980	3	1		
AK	Elfin Cove AK	1980	3	1		
AK	Gastineau AK	1980	3	1		
AK	Juneau Harbor AK	1980	3	6		
AK	Ninilchik Harbor AK	1994	18	230	182	
AK	Nome Harbor AK	1994	18	537	305	
AK	Old Harbor, Kodiak AK	1994	1	11		
AK	Pelican Harbor AK	1980	3	1		
AK	Port Lions AK	1984	3	100		
AK	Rocky Pass In Keku Strait AK	1980	3	1		
AK	Stikine River AK	1990	7	7		
AK	Valdez Harbor AK	1980	3	4		
AK	Wrangell Harbor AK	1994	10	32		
AS	Auasi Small Boat Harbor AS	1994	3	4		
AS	Aunuu Harbor AS	1994	8	56		
AS	Tau Harbor AS	1992	4	26		
CA	Bodega Bay CA	1994	11	104		
CA	Dana Point Harbor CA	1992	7	40		2/ (Deep)
CA	Fislermans Wharf Area CA	1993	2	16		
CA	Half Moon Bay Harbor CA	1986	5	163		
CA	Monterey Harbor CA	1994	2	72		
CA	Newport Harbor CA	1993	6	37		2/ (Deep)
CA	Noyo River Harbor CA	1994	18	442		
CA	Oceanside Harbor CA	1994	17	1693	1,045	2/ (Deep)
CA	Petaluma River CA	1994	16	643	1,690	
CA	Port San Luis CA	1993	10	163		1/
CA	Redondo Beach King Harbor CA	1993	13	345		
CA	San Diego Mission Bay CA	1994	13	337		2/ (Deep)

State	Project Name **	Last Year of Recorded Expenditures For Maintenance	Number of Years Funded FY 1977-1994	Average Annual Expenditure FY 1977-1994 (\$000 *)	FY 1996 Budget (\$000)	Remarks
CA	San Leandro Marina CA	1994	10	213		
CA	San Rafael Creek CA	1993	12	303		
CA	Santa Barbara Harbor CA	1994	18	862	1,038	2/ (Deep)
CA	Santa Cruz Harbor CA	1994	13	592		2/ (Deep)
CA	Yuba River CA	1994	2	1	30	1/
CT	Branford Harbor CT	1990	4	74		
CT	Clinton Harbor CT	1985	2	11		
CT	Greenwich Harbor CT					
CT	Guilford Harbor CT	1994	1	19		
CT	Mianus River CT	1985	4	33		
CT	Milford Harbor CT	1984	8	56		
CT	North Cove CT	1993	13	75		
CT	Norwalk Harbor CT	1983	6	161		
CT	Southport Harbor CT					
CT	Stonington Harbor CT					
CT	Stony Creek Branford CT	1994	3	21		
CT	Westcott Cove CT	1978	2	12		
CT	Westport Harbor & Saugtuck River					
DE	Broad Creek River DE					
DE	Cedar Creek DE	1994	2	1,489		
DE	Indian River Inlet and Bay DE	1994	18	191		
DE	Inland Waterway Rehoboth Bay To Delaware Bay DE	1994	18	212		
DE	Little River DE	1980	2	2		
DE	Mispillion River DE	1994	15	232		
DE	Murderkill River DE	1994	16	105	40	
DE	Pepper Creek DE	1989	1	1		
DE	Waterway From Indian River To	1991	2	17		
DC	Anacostia River Basin DC & MD	1993	6	155		
FL	Anclote River FL	1994	2	10		
FL	Apalachicola Bay FL	1994	18	232	187	
FL	Bakers Haulover Inlet FL	1985	2	8		
FL	Blackwater River FL	1994	8	9		
FL	Carrabelle Harbor FL	1994	6	7		
FL	Channel Naples-Big Marco Pass FL					
FL	Choctawhatchee River FL AL	1994	11	142		
FL	Clearwater Pass FL	1994	9	70		
FL	Crystal River, FL	1994	1	1		1/
FL	East Pass Channel FL	1994	18	558	886	
FL	Eau Gallie Harbor FL	1994	3	48		
FL	Escambia-Conecuh River FL AL	1993	7	48		
FL	Fort Myers Beach FL	1994	10	54		
FL	Grand Lagoon FL	1979	1	1		
FL	Holmes Creek FL					
FL	Horseshoe Cove, FL	1994	2	2		1/
FL	Intracoastal Waterway Caloosahatchee River To Anclote	1994	18	374	221	
FL	Johns Pass FL	1994	10	179	400	
FL	La Grange Bayou FL	1994	7	4		
FL	Longboat Pass FL	1994	10	161		
FL	Melbourne Harbor FL	1986	3	46		
FL	New Pass FL	1994	13	295	1,086	
FL	Oklawaha River FL	1994	18	43	127	
FL	Panacea Harbor FL	1993	3	4		
FL	Ponce de Leon Inlet FL	1994	18	1,154	2,147	
FL	St Augustine Harbor FL	1994	12	227	4	1/
FL	St Marks River FL					
FL	St. Johns River - Jacksonville To	1986	7	41		
FL	St. Lucie Inlet FL	1994	17	509	85	
FL	Suwannee River, FL	1994	1	1		1/
FL	Withlacoochie River FL	1994	2	2	34	
GA	Atamaha-Oconee and Ocumulgee	1987	1	1		
GA	Satilla River GA					
GA	Savannah River Below Augusta GA	1994	18	709	2,475	
GU	Agana Small Boat Harbor GU	1990	3	3		
HI	Haleiwa Small Boat Harbor HI	1984	3	7		
HI	Manele Small Boat Harbor HI	1986	5	47		
HI	Waianae Boat Harbor HI	1992	4	2		

State	Project Name **	Last Year of Recorded Expenditures For Maintenance	Number of Years Funded FY 1977-1994	Average Annual Expenditure FY 1977-1994 (\$000 *)	FY 1996 Budget (\$000)	Remarks
IN	Burns Waterway Small Boat Harbor	1994	8	59	95	
LA	Chefunctee River & Bogue Falia LA	1987	2	29		1/
LA	Mississippi River Outlets, Venice LA	1994	16	1420	1,645	1/
ME	Bass Harbor Bar ME					
ME	Boothbay Harbor ME					
ME	Bunker Harbor ME					
ME	Camden Harbor ME					
ME	Corea Harbor ME					
ME	East Boothbay Harbor ME					
ME	Frenchboro Harbor ME	1978	1	1		
ME	Hendricks Harbor ME					
ME	Isle Au Haut Thoroughfare ME	1980	2	10		
ME	Jonesport Harbor ME					
ME	Josias River ME	1994	1	11		
ME	Kennebunk River ME	1985	7	36		
ME	Lubec Channel ME					
ME	Medomak River ME					
ME	Moosabec Bar ME					
ME	Narraguagus River ME					
ME	Pepperell Cove ME					
ME	Pig Island Gut ME					
ME	Royal River ME	1986	4	39		
ME	Saco River ME	1994	10	102	412	
ME	Sesuit Harbor ME	1994	4	29	217	
ME	Southwest Harbor ME					
ME	Stonington Harbor ME					
ME	Wells Harbor ME	1992	7	22		
ME	Winter Harbor ME					
ME	Wood Island Harbor ME	1989	2	29		
MD	Back Creek MD	1982	1	1		
MD	Black Walnut Harbor MD	1982	3	22		
MD	Broad Creek MD	1994	3	3	360	
MD	Chester River MD	1994	13	137	660	
MD	Choptank River MD	1980	4	2		
MD	Claiborne Harbor MD	1988	5	41		
MD	Corsica River MD					
MD	Crisfield Harbor MD	1992	9	100		
MD	Cypress Creek MD					
MD	Duck Point Cove MD	1983	4	17		
MD	Fishing Bay MD	1990	9	97	70	
MD	Fishing Creek MD	1991	10	122		
MD	Goose Creek MD	1978	1	1		
MD	Herring Bay and Rockhold Creek	1994	13	62		
MD	Herring Creek MD	1994	13	235		
MD	Herring Creek Tall Timbers MD	1989	1		40	
MD	Herring Creek MD	1987	3	5		1/
MD	Honga River Tar Bay MD	1980	2			
MD	Island Creek MD	1992	10	130		
MD	Island Creek St. George Island MD	1994	8	32		
MD	Knapps Narrows MD	1980	1	1		
MD	La Trappe River MD					
MD	Little Creek, Kent Island MD					
MD	Lower Thoroughfare at or near Wenona Deal Island MD	1987	6	44		
MD	Lowes Wharf Anchorage MD	1986	5	19		
MD	Madison Bay MD	1981	1	1		
MD	MiddleRiver And Dark Head Creek					
MD	Muddy Hook/Tyler Coves MD	1990	6	34		
MD	Nan Cove MD					
MD	Nanticoke River At Bivalve MD	1983	3	1		
MD	Nanticoke River DE & MD	1994	9	267	260	
MD	Nanticoke River MD	1982	2	1		1/
MD	Nanticoke River & Tributaries DE &	1994	2	26		
MD	Neale Sound MD	1991	5	44		
MD	Neavitt Harbor MD					
MD	Northeast River MD	1994	7	54		
MD	Ocean City Harbor And Inlet and Sinepuxent Bay MD	1994	18	499	125	

State	Project Name **	Last Year of Recorded Expenditures For Maintenance	Number of Years Funded FY 1977-1994	Average Annual Expenditure FY 1977-1994 (\$000 *)	FY 1996 Budget (\$000)	Remarks
MD	Parish Creek MD	1988	6	30		
MD	Pocomoke River MD	1994	13	110		
MD	Potomac River Lower Cedar Point					
MD	Queenstown Harbor MD	1985	2	19		
MD	Rhodes Point To Tylerton MD	1994	8	93		
MD	Rock Hall Harbor MD	1982	4	2		
MD	Shallow Creek					
MD	Slaughter Creek MD	1994	9	36		
MD	Smith Creek MD	1982	1			
MD	St. Catherine Sound MD	1989	7	42		
MD	St. Jerome Creek MD	1992	9	36		
MD	St. Michaels MD	1980	1			
MD	St. Patricks Creek MD	1987	5	8		
MD	St. Peters Creek MD	1978	1			
MD	Tilghman Island Harbor MD	1980	1	26		
MD	Town Creek MD	1993	1	27	491	
MD	Tred Avon River MD	1994	7	59		
MD	Tuckahoe River MD	1980	1	1		
MD	Twitch Cove Channel Big Thoroughfare River MD	1993	12	153	150	
MD	Upper Thoroughfare Deal Island MD	1987	7	46		
MD	Warwick River MD	1984	3	4		
MD	Wicomico River MD	1994	18	600	615	
MA	Andrews River MA	1993	9	25		
MA	Buttermilk Bay Channel MA	1984	2	7		
MA	Chatham Harbor MA	1993	11	183		
MA	Cohasset Harbor MA	1978	1	12		
MA	Cuttyhunk Harbor MA	1994	6	31		
MA	Duxbury Harbor MA	1977	1	58		
MA	Essex River MA					
MA	Falmouth Harbor MA	1977	1	17		
MA	Green Harbor MA	1994	18	184	364	
MA	Hyannis Harbor MA	1993	7	39	1,214	
MA	Little Harbor Woods Hole MA					
MA	Menemsha Creek Martha's Vinyard	1981	4	12		
MA	Merrimack River MA					
MA	Newburyport Harbor MA	1993	15	194	646	
MA	Provincetown Harbor MA	1985	4	49		
MA	Scituate Harbor MA					
MA	Wellfleet Harbor MA	1994	7	50		
MA	Woods Hole Channel MA					
MI	Arcadia Harbor MI	1994	10	243	77	
MI	Au Sable Harbor MI	1991	5	21		
MI	Bay Port Harbor MI	1994	4	7		
MI	Big Bay Harbor MI	1994	5	21		
MI	Black River Upper Peninsula MI	1994	13	37		
MI	Black River (Port Huron) MI	1994	13	51		
MI	Bolles Harbor MI	1994	8	60	29	
MI	Caseville Harbor MI	1994	5	30		
MI	Clinton River MI	1994	9	338		
MI	Detour Harbor MI	1989	4	23		
MI	Eagle Harbor MI	1989	6	2	60	
MN	Grand Marais Harbor	1994	7	59.8		2/ (Deep)
MI	Grand Marais Harbor MI	1994	16	191	218	2/ (Deep)
MI	Grand Traverse Harbor MI	1992	15	74	123	
MI	Greilickville Harbor, (Traverse City)	1994	1	5	63	1/
MI	Hammond Bay Harbor MI	1994	6	31		
MI	Harrisville Harbor MI	1994	6	32		
MI	Inland Route Michigan MI	1994	10	36	31	
MI	Lac La Belle Harbor MI	1994	8	32		
MI	Leiland Harbor MI	1994	18	142	280	
MI	Lexington Harbor MI	1994	9	96	147	
MI	Little Lake Harbor MI	1994	10	123	136	
MI	Mackinac City Harbor MI					1/
MI	Mackinac Harbor MI	1989	4	102		
MI	New Buffalo Harbor MI	1994	10	179		
MI	Penwater	1994	18	245.3	799	2/ (Deep)
MI	Petoskey Harbor MI	1986	2	14		

State	Project Name **	Last Year of Recorded Expenditures For Maintenance	Number of Years Funded FY 1977-1994	Average Annual Expenditure FY 1977-1994 (\$000 *)	FY 1996 Budget (\$000)	Remarks
MI	Point Lookout Harbor MI	1994	8	260	301	
MI	Port Austin Harbor MI	1992	6	67	188	
MI	Port Sanilac Harbor MI	1994	10	64	185	
MI	Saugatuck Harbor MI	1994	18	109	918	
MI	Sebewaing River MI	1993	12	244		1/
MI	South Haven MI	1994	16	252		2/ (Deep)
MI	St James Harbor MI					
MI	St Joseph River MI	1982	1	45		
MI	Tawas Bay Harbor, MI	1994	1	1		1/
MI	White Lake Harbor MI	1994	15	145	434	2/ (Deep)
MI	Whitefish Pointe Harbor MI	1991	6	14		
MN	Knife River Harbor MN	1986	9	6		
MN	Warroad Harbor MN	1994	9	37		1/
MN	Zippel Bay Small Boat Harbor MN	1991	1	1		
MS	Biloxi Harbor MS	1994	18	677	461	
MS	Bluff Creek MS					
MS	Cadet Bayou MS	1991	12	100		
MS	East Pearl River MS	1978	2	18		1/
MS	Noxubee River MS	1993	6	24		
MS	Pascagoula River MS					
MS	Pass Christian Harbor MS	1994	2	24		
MS	Port Bienville MS	1983	1			
NH	Hampton Harbor NH	1988	10	83		
NH	Little Harbor, NH	1994	1	5		1/
NH	Rye Harbor NH	1991	4	28		
NH	Winnepesaukee L. NH					
NJ	Absecon Creek NJ					
NJ	Alloway Creek NJ	1984	1	1		
NJ	Barneгат Inlet NJ	1994	18	702	1,455	
NJ	Big Timber Creek NJ	1989	1	1		
NJ	Cedar Creek NJ	1992	2	20		1/
NJ	Cheesequake Creek NJ	1994	5	24	2,590	
NJ	Cohansey River NJ	1991	9	237		
NJ	Cooper River NJ	1989	1	1		
NJ	Great Chazy River, NJ					1/
NJ	Keyport Harbor NJ	1990	4	68		
NJ	Manasquan River NJ	1994	11	146		
NJ	Matawan Creek NJ	1990	3	9		
NJ	Maurice River NJ	1994	2	4		
NJ	Moriches Inlet, NJ					1/
NJ	New Jersey Inland Waterway	1994	18	1844	3,729	
NJ	Raccoon Creek NJ	1994	2	3		
NJ	Sandy Hook Bay At Leona NJ	1991	2	33		
NJ	Sandy Hook Bay NJ	1991	3	253		
NJ	Shark River NJ	1993	10	41	1,190	
NJ	Shoal Harbor Cmpin Creek NJ	1990	8	123		
NJ	Shrewsbury River NJ	1994	9	283		
NJ	Toms River, NJ	1993	1	2	290	1/
NJ	Tuckerton Creek NJ	1986	1	2		
NY	Barcelona Harbor NY	1989	9	126		
NY	Bronx River NY	1991	7	210		
NY	Brown Creek NY	1994	4	32	500	
NY	Cattaraugus Creek NY	1994	8	12		
NY	Coney Island Creek NY	1990	1	3		
NY	East Chester Creek NY	1994	9	156		
NY	East Rockaway Inlet NY	1994	18	745	930	
NY	Echo Bay Harbor NY					
NY	Firc Island Inlet NY	1994	15	881	1,668	
NY	Fire Island Inlet To Jones Beach NY	1992	7	315		
NY	Glen Cove Creek NY	1989	4	8	130	
NY	Great South Bay NY	1993	3	82		
NY	Hay (West Harbor) Fisber Island NY					
NY	Hempstead Harbor NY	1991	2	6		
NY	Huntington Harbor NY	1987	1	1		
NY	Irondequoit Bay NY	1993	6	53	160	
NY	Jones Inlet NY	1994	17	849	3,880	
NY	Lake Montauk Harbor NY	1994	2	48	1,930	
NY	Little River NY					

State	Project Name **	Last Year of Recorded Expenditures For Maintenance	Number of Years Funded FY 1977-1994	Average Annual Expenditure FY 1977-1994 (\$000 *)	FY 1996 Budget (\$000)	Remarks
NY	Little Sodus Bay Harbor NY	1994	16	74	1,560	1/
NY	Long Island Intracoastal Waterway	1994	14	609		
NY	Mamaroneck Harbor NY	1992	4	44		
NY	Mattituck Harbor NY	1994	8	52	570	
NY	Milton Harbor NY	1993	4	88		
NY	Morristown Harbor NY					
NY	Narrows of Lake Champlain NY &	1994	18	44	645	
NY	New Rochelle Harbor NY	1991	3	4		
NY	Niagara River NY					
NY	Northport Harbor NY	1991	2	3		
NY	Oak Orchard Harbor NY	1993	8	24	10	
NY	Olcott Harbor NY	1991	5	8	10	
NY	Plattsburgh Harbor NY	1986	1	6		
NY	Port Chester Harbor NY	1994	5	375		
NY	Rondout Harbor NY	1990	5	310		
NY	Sackets Harbor NY	1982	5	2		
NY	Saugerties Harbor NY	1989	2	16		
NY	Sheepshead Bay NY	1990	1	3		
NY	Shinnecock Inlet NY	1994	4	88	200	
NY	Sturgeon Point NY	1994	5	2		
NY	Tarrytown Harbor NY	1993	3	47		
NY	Westchester Creek NY	1992	7	265		
NY	Wilson Harbor NY	1993	7	27	10	
NC	Atlantic Beach Channels NC	1990	2	8		
NC	Avon Harbor NC	1986	2	28		
NC	Bay River NC					
NC	Belhaven Harbor NC	1988	3	21	415	
NC	Black River NC					
NC	Cashie River NC					
NC	Channel Connecting Thoroughfare Bay With Cedar Bay NC					
NC	Channel From Back Sound Lookout	1993	17	134		
NC	Channel From Pamlico Sound To					
NC	Chowan River NC					
NC	Contentnea Creek NC					
NC	Drum Inlet NC	1994	3	9		
NC	Edenton Harbor NC					
NC	Far Creek NC	1992	6	77		
NC	Fishing Creek NC					
NC	Knobbs Creek NC					
NC	Lockwd Folly River NC	1994	18	554	857	
NC	Mackay Creek NC					
NC	Manteo Shallowbag Bay NC	1994	18	4206	6,506	
NC	Neuse River NC	1982	1			
NC	Newbegun Creek NC					
NC	Newbegun Creek NC					
NC	Northeast Cape Fear River NC					
NC	Ocracoke Inlet NC	1991	15	27		
NC	Pamlico & Tar River NC	1993	8	17	125	
NC	Pembroke Creek NC					
NC	Perquimans River NC					
NC	Roanoke River NC	1994	5	13	125	
NC	Rollinson Channel NC	1994	13	120		
NC	Scuppermong River NC					
NC	Shallotte River NC	1993	5	24		
NC	Silver Lake Harbor NC	1994	18	444	200	
NC	Smiths Creek (Wilmington County)	1988	1	1		
NC	Smiths Creek (Pamlico County) NC	1989	1			
NC	South River NC					
NC	Stumpy Point Bay NC	1992	7	52		
NC	Swift Creek NC					
NC	Trent River NC					
NC	Wallace Channel NC					
NC	Waterway Connecting Pamlico Sound & Beauford Harbor NC	1994	15	192		
NC	Waterway Connecting Swan Quarter Bay to Deep Bay NC	1978	2	19		
NC	Wrights Creek NC	1977	1	18		

State	Project Name **	Last Year of Recorded Expenditures For Maintenance	Number of Years Funded FY 1977-1994	Average Annual Expenditure FY 1977-1994 (\$000 *)	FY 1996 Budget (\$000)	Remarks
OH	Kelley's Island Harbor OH					
OH	Port Clinton Harbor OH	1994	7	33		
OH	Put-In-Bay Harbor OH					
OH	Rocky River Harbor OH	1994	12	137	12	
OH	Vermillion Harbor OH	1994	14	125	10	
OH	West Harbor OH	1994	8	85		
OR	Chetco River OR	1994	18	434	500	
OR	Clatskania River OR					
OR	Columbia River Baker Bay OR	1994	18	241	26	
OR	Columbia River Between Chinook & Sand Island OR	1994	18	375	7	
OR	Coos & Millicoma Rivers OR	1991	15	124		
OR	Coquille River OR	1994	18	355	454	
OR	Depoe Bay OR	1994	17	79	3	
OR	Nehalem Bay OR	1979	1	1		
OR	Rogue River Harbor Gold Bay Harbor	1994	18	816	816	
OR	Smith River OR					
OR	Yaquina River OR	1994	8	37		
OR	Young Bay & River OR					
RJ	Bullocks Pt Cve RI	1979	3	2		
RJ	Greenwich Bay RI					
RJ	Little Narragansett BAY	1991	3			
RJ	Patchogue River RI & CT	1984	3	34		
RJ	Pawcatuck River RI & CT	1978	2	19		
RJ	Pawtuxet Cove RI					
SC	Adams Creek SC	1977	1	1		
SC	Archers Creek SC					
SC	Brookgreen Garden Canal SC	1993	2			
SC	Edisto River SC					
SC	Folly River SC	1994	14	229	386	
SC	Great Pee Dee River SC					
SC	Jeremy Creek SC	1994	9	6		
SC	Little River Inlet SC	1994	18	181	64	
SC	Lynches River SC	1981	2	5		
SC	Mingo Creek SC					
SC	Murrells Inlet SC	1994	13	192	65	
SC	Salkehatchie River SC					
SC	Santee River SC					
SC	Town Creek SC	1994	17	601		
SC	Village Creek SC	1983	4	1		
SC	Waccamaw River SC	1978	2	1		
SC	Wateree River SC					
TX	Cedar Bayou TX	1989	6	120		
TX	Channel To Aransas Pass TX					1/
TX	Channel To Port Bolivar, TX	1993	6	27		1/
TX	Channel To Red Bluff, TX	1994	2	79		1/
TX	Chocolate Bayou, TX	1994	2	59		1/
TX	Clear Creek And Lake TX	1982	3	11		
TX	Double Bayou TX	1987	5	70		
TX	Little Bay TX	1979	3	22		
TX	Trinity River TX	1994	18	738	1,270	
VT	Burlington Harbor VT	1990	2	1		
VI	St Thomas Harbor VI					1/
VA	Appomattox River VA	1994	7	262		
VA	Aquia Creek VA					
VA	Bonum Creek VA	1993	7	24		
VA	Branson Cove VA	1981	1	1		
VA	Broad Creek VA	1994	6	45		
VA	Chincoteague Bay VA	1994	18	714	888	
VA	Chincoteague Harbor of Refuge VA					
VA	Chincoteague Inlet VA	1991	2	18	42	
VA	Cranes Creek VA	1992	4	44	321	
VA	Deep Creek Newport News VA	1991	7	211	597	
VA	Greenville Creek , Lancaster Co VA	1994	2	17		
VA	Hampton Creek VA	1989	6	50		
VA	Horn Harbor VA	1990	2	10		
VA	Hoskins Creek VA (Baltimore	1991	1		395	
VA	Hoskins Creek VA (Norfolk District)	1985	5	10		

State	Project Name **	Last Year of Recorded Expenditures For Maintenance	Number of Years Funded FY 1977-1994	Average Annual Expenditure FY 1977-1994 (\$000 *)	FY 1996 Budget (\$000)	Remarks
VA	Lafayette River VA	1994	3	19		
VA	Little Machipongo River VA	1987	3	29		
VA	Little Wicomico River VA	1994	15	113		
VA	Lower Machedoc Creek VA					
VA	Lynnhaven Inlet VA	1994	14	240		
VA	Meherrin River VA	1988	2			
VA	Monroe Bay Creek VA	1994	6	24		
VA	Nansemond River VA	1994	6	33		
VA	Neabsco Creek VA					
VA	Newport News Creek VA	1992	1	10		
VA	Nomini Bay Creek VA	1981	1	1		
VA	Nottoway River VA	1991	2	2		
VA	Occoquan Creek VA	1980	1			
VA	Oyster Channel, VA	1991	1	21		
VA	Oyster Creek VA	1992	2	24		1/
VA	Pagan River, VA	1994	1	7		1/
VA	Parker Creek VA	1993	6	54		
VA	Parrotts Creek, VA					1/
VA	Potomac River, Mt Vernon VA	1994	5	18		
VA	Queens Creek VA	1991	5	22	337	
VA	Quinby Creek VA	1994	13	108		
VA	Rappahannock River VA	1983	3	3		
VA	Rudee Inlet VA	1994	4	96	570	
VA	Starlings Creek VA	1993	8	40		
VA	Tangier Channel VA	1994	15	201	467	
VA	Tylers Beach Channel VA	1993	8	48	34	
VA	Upper Machodoc Creek VA					
VA	Waterway Coast Of VA	1994	18	1079	1,268	
VA	Whitings Creek, Middlesex County	1994	3	25		
VA	Willoughby Channel, VA	1994	1	20		1/
VA	Winter Harbor VA	1994	7	24		
WA	Bay Center Boat Basin WA (Part of Willapa Harbor Project)					
WA	Cowlitz River WA	1980	4	24		
WA	Deep River WA					
WA	Ediz Hook WA	1993	13	96		1/
WA	Edmonds Harbor WA	1987	2	16		
WA	Elochman Slough WA	1990	2	10		
WA	Friday Harbor WA	1994	5	4		1/
WA	Grays River WA					
WA	Hammersley Inlet WA	1992	7	3		
WA	Lake River WA	1983	4	3		
WA	Lewis River WA	1982	6	17		
WA	Nahcotta Bay WA (Part of Willapa Harbor Project)					
WA	Neah BAY	1985	5	139		
WA	Olympia East Bay Marina WA					
WA	Port Townsend Harbor WA	1992	7	6		
WA	Puget Sound And Tributary Waters	1994	13	828	1,155	1/
WA	Quillayute River WA	1994	16	599	2,250	
WA	Skamokawa Creek WA	1991	11	19		
WA	Swinomish Channel WA	1994	18	288		
WA	Tokland Boat Basin WA (Part of Willapa Harbor Project)					
WI	Algoma Harbor WI	1994	6	50	117	
WI	Bayfield Harbor WI	1979	3	1		
WI	Big Suamico Harbor WI	1994	5	58		
WI	Cornucopia Harbor WI	1993	12	41	107	
WI	Fox River WI	1994	18	1,956	2,215	
WI	La Pointe Harbor WI	1993	10	13		
WI	Pensaukee Harbor WI	1993	1	13		
WI	Saxon Harbor WI	1994	7	27		
WI	St Croix River MN & WI	1991	10	42		
501	Project Count	398	398	398	111	N/A
	Total Amounts	N/A	N/A	55,495	71,049	N/A

PROJECTS WITHDRAWN FROM LIST

CA	Marina Del Rey CA	1994	10	294		3/ (Deep)
CA	Sacramento River CA	1994	18	441	117	3/ (Deep)
ME	Carvers Harbor ME					3/ (Deep)
ME	Georges River ME	1977	1	19		3/ (Deep)
MD	Annapolis Harbor MD	1993	3	2		3/ (Deep)
MA	Plymouth Harbor MA	1988	6	24		3/ (Deep)
MA	Rockport Harbor MA	1991	6	31		3/ (Deep)
MA	Saleni Harbor MA					3/ (Deep)
MI	Portage Lake Harbor MI	1994	13	83	103	3/ (Deep)
WA	Anacortes Harbor WA	1994	11	73		3/ (Deep)
10	Project Count	8	8	8	2	N/A
	Total Amounts	N/A	N/A	967	220	N/A

NOTES:

* Expenditures are adjusted to 1994 dollars based on cost per cubic yard of dredging. A blank amount reflects an average of less than \$50

** This includes all projects on table furnished for the record at FY 1996 House Hearings on Appropriations

1/ Projects added to list as a result of further analysis since furnished to House Appropriations Committee.

2/ Projects greater than 14 feet deep, but, listed because of no recent contributions to Harbor Maintenance Fee.

3/ These projects, shown on list furnished for the record at House hearing, no longer fit current criteria for phase out because updated records show Harbor Maintenance Trust Fees were collected for the facility in Fiscal Year 1993.

SMALL PORT O&M

MR. HATFIELD. Is this small port dredging initiative now subject to further study within the Corps or at OMB?

DR. ZIRSCHKY. No reassessment of this policy is currently contemplated.

MR. HATFIELD. If there are changes in this initiative, will lower targets for your Corps budget savings be included as part of it, or will the Corps be forced to look elsewhere within the Corps to make up the savings?

DR. ZIRSCHKY. In view of the budget deficit the required savings must be identified in the Corps program.

MR. HATFIELD. Continuing with the issue of small port O&M, please describe to me the process by which this policy initiative was adopted by the Corps. In developing this initiative, I am interested in the working relationship which existed between the Corps and OMB. Were your other mission changes developed with OMB in the same manner? If not, please describe how the other initiatives were developed with your OMB colleagues.

DR. ZIRSCHKY. The policy of turning over to state and local entities ports that do not contribute to the Harbor Maintenance Trust Fund, starting in FY 98, was developed by the OMB and included in the President's budget message. The Corps role in the development was limited to furnishing data from which the savings were computed. All of the policies proposed with the FY 96 budget were developed in the same manner.

MR. HATFIELD. As you know, dredging funds come from the Harbor Maintenance Trust Fund. They are user fees paid by shippers. These monies do not come from general revenues, even though we allocate them as part of our appropriations process. So this major policy change in dredging services is being made not to save user fees. And this occurs at a time when we are told how important user fees are to be in lowering overall Federal spending levels for different programs. Am I correct?

DR. ZIRSCHKY. You are correct, funds for harbor dredging come from the Harbor Maintenance Trust Fund which is derived from user fees.

HARBOR MAINTENANCE TRUST FUND

Senator HATFIELD. You and I know of the concern in many quarters about the increasing annual surplus in the Harbor Maintenance Trust Fund. By how much did this surplus grow in the last fiscal year and in the previous few years?

Dr. ZIRSCHKY. The Harbor Maintenance Trust Fund balance at the end of fiscal year 1994 was \$452 million. This surplus is caused by the cumulative effect of delays in obtaining legislation that would have allowed a drawdown of the balance commensurate with revenues collected, and optimistic outyear budgets upon which the ad valorem rate increase was based in 1991. The current rate of 0.125% ad valorem fee on commercial cargo value was developed based on projected transfers of \$530 million in 1993, which would have provided 100% of the projected maintenance costs of commercial channels and harbors, approximately \$45.5 million annually for the National Oceanic and Atmospheric Administration for programs beneficial to the commercial navigation industry, and up to \$5 million annually for costs of administration of the Harbor Maintenance Fee. Proposed legislation for NOAA to use HMTF fees was delayed, but is still planned for submittal for FY 96. In addition, legislation to use up to \$5 million for administrative expenses was delayed for several years, but will be available in FY 1996. The cumulative effect of delays from FY 1991 to FY 1995 in obtaining authorizing legislation, optimistic outyear budgets that did not materialize, and compounding interest has created the current surplus. These factors resulted in annual increases in year end balances of \$42 million, \$48 million, \$182 million, and \$149 million for fiscal years 1991 through 1994, respectively.

Senator HATFIELD. What is the expected growth in the surplus in the HMTF for FY 1995 and FY 1996?

Dr. ZIRSCHKY. Current estimates of revenues and expenses for FY 1995 and FY 1996 would result in year end balances of approximately \$644 million and \$803 million, respectively. This represents a growth in the surplus of \$192 million in FY 1995 and \$159 million in FY 1996.

HARBOR MAINTENANCE TRUST FUND

Senator HATFIELD. With your initiative to terminate smaller port O&M dredging, won't this make the harbor maintenance trust fund surplus grow even more?

Dr. ZIRSCHKY. Not performing smaller port O&M dredging would very likely increase the surplus by approximately \$80 million per year. Options to reduce the surplus include reducing the Harbor Maintenance Fee to a level that would balance projected revenues and expenses, or using the funds for other productive outputs in support of commercial navigation, or both.

CONTINUING AUTHORITIES PROGRAMS

Senator HATFIELD. Turning to the Continuing Authorities Programs, haven't these programs been cited as a workable way to move quickly to achieve some needed construction work on a limited scale without the years and years of studies, analyses and delay?

Dr. ZIRSCHKY. Yes. These programs have been effective in solving problems on a limited scale and are highly valued by their beneficiaries.

Senator HATFIELD. Won't this proposed change hurt the ability of your District Engineers to provide results when needed on a timely basis?

Dr. ZIRSCHKY. The Corps would no longer have the authority to address water resources problems without specific Congressional authorization and appropriation.

Senator HATFIELD. Can you provide the committee with a list on a state-by-state basis of Continuing Authority programs undertaken or completed by the Corps in the past three years. Please also provide us with comparisons of the difference in time to initiate and complete regular Corps navigation projects and CA projects.

Dr. ZIRSCHKY. As a rule, projects pursued under Section 107 are completed in a significantly shorter time than specifically authorized projects. For example, of the navigation projects receiving completion funds in Fiscal Year 1994 and thus far in 1995, Section 107 projects were completed an average of almost 5 years faster than specifically authorized projects. A list of Continuing Authorities Program studies and projects undertaken or completed in the last three years will be provided for the record.

(The information follows:)

ACTIVE OR COMPLETED CONTINUING AUTHORITY PROJECTS
UNDERWAY DURING THE PERIOD OCTOBER 1991 THRU MARCH 1995

SECTION PROJECT NAME

** STATE AK

14 ANNETTE ISLAND, METLAKATLA, AK
14 DEERING, AK
14 EMMONAK, AK
14 METLAKATLA, AK
107 KING COVE, AK
107 LARSEN BAY, AK
107 METLAKATLA, AK
107 MOUNTAIN POINT, AK
107 OUZINKIE, AK
107 PORT LIONS, AK
107 SEWARD RAILROAD DOCK, AK
107 TATITLEK, AK
107 VALDEZ HARBOR, AK
107 WHITTIER, AK
107 WILLIAMSPORT, AK

** STATE AL

14 COOSA RIVER, WHORTONS BEND RD, ETOWAH CO., AL
14 COUNTY ROAD 55, ETOWAH COUNTY, AL
14 DAUPHIN ISLAND SHORELINE, AL
14 EAST END DAUPHIN ISLAND, AL
14 GADSDEN WATER TREATMENT PLANT, AL
14 LAKE GUNTERSVILLE, GUNTERSVILLE, AL
14 PORTERSVILLE BAY EAST, AL
14 PORTERSVILLE BAY WEST, AL
14 SHEFFIELD WATER INTAKE, COLBERT CO., AL
14 TENNESSEE RIVER, DITTO LANDING, HUNTSVILLE, AL
107 FORT GAINES, DAUPHIN ISLAND, AL
107 MORGAN COUNTY-DECATUR PORT, AL
107 PORT OF FLORENCE, AL
205 BLACK WARRIOR RIVER, NORTHPORT, AL
205 CHOCTAWHATCHEE AND PEA RIVER BASINS, AL
205 CLARK SPRING BRANCH, DECATUR, AL
205 CRIBBS MILL, TUSCALOOSA, AL
205 DALLAS BRANCH, HUNTSVILLE, AL
205 ESLAVA CREEK, MOBILE, AL
205 MURDER CREEK, BREWTON, AL
205 TOWN CREEK TRIBUTARY, JASPER, AL

** STATE AR

14 CURRENT RIVER, STATE HIGHWAY 211, CLAY COUNTY, AR
14 HIGHWAY 309, PETIT JEAN RIVER, YELL COUNTY, AR
14 HIGHWAY 71, RED RIVER, LITTLE RIVER COUNTY, AR
14 I-30, RED RIVER, HEMPSTEAD COUNTY, AR
14 SEWAGE LAGOONS, LITTLE RED RIVER, JUDSONIA, AR
107 DEVALLS BLUFF, AR
107 YELLOW BEND PORT, AR
205 BLACK POND SLOUGH, MCGEHEE, AR
205 CANAL 19, AR
205 CANAL 43, AR
205 CATO SPRINGS BROOK & TOWN BROOK, FAYETTEVILLE, AR
205 CROOKED CREEK, HARRISON, AR
205 MILL CREEK, FORT SMITH, AR
205 RAFT CREEK, AR
205 WHITE R, BATESVILLE, AR

ACTIVE OR COMPLETED CONTINUING AUTHORITY PROJECTS
UNDERWAY DURING THE PERIOD OCTOBER 1991 THRU MARCH 1995

SECTION PROJECT NAME

** STATE AS

14 MASEFAU BAY, AS
103 LEPUA AREA, AS

** STATE AZ

14 91ST AVENUE WASTEWATER TREATMENT PLANT, PHOENIX, AZ
14 CLARKDALE WASTEWATER TREATMENT PLANT, AZ
14 CORTARO ROAD BRIDGE, AZ
14 PINAL CREEK, GLOBE SEWER PLANT, AZ
14 TUTHILL ROAD BRIDGE, MARICOPA COUNTY, AZ
205 CHAPARRAL/MOHAVE WASHES, BULLHEAD CITY, AZ
205 ELOY, PINAL COUNTY, AZ
205 HICKMAN WASH, FORT DEFIANCE, AZ
205 KEARNY, PINAL COUNTY, AZ
205 LITTLE COLORADO NAVAJO NATION, AZ
205 LOWER FINGER WASH, PIMA COUNTY, AZ
205 MAMMOTH, PINAL COUNTY, AZ
205 MOHAVE COUNTY FLOOD WARNING SYSTEM, AZ
205 N. SULPHUR SPRINGS VALLEY, WILCOX, AZ
205 SANTA CRUZ RIVER, TUCSON, AZ
208 WET BEAVER CREEK, LAKE MONTEZUMA, AZ

** STATE CA

14 ARROYO CONEJO CREEK, CA
14 BIG TUJUNGA WASH, LOS ANGELES, CA
14 SAN ARDO WATER DISTRICT, SALINAS R., MONTEREY CO., CA
14 SHELTER COVE, HUMBOLDT COUNTY, CA
14 WALNUT CANYON, ANAHEIM HILLS, CA
103 EMERYVILLE POINT PARK, CITY OF EMERYVILLE, CA
205 BURNEY CREEK, SHASTA COUNTY, CA
205 CHURN CREEK, SHASTA COUNTY, CA
205 LAKE ELSINORE, CA
205 LOS COCHES CREEK, CA
205 MAGPIE CREEK, CITY OF SACRAMENTO, CA
205 MISSION ZANJA CREEK, REDLANDS, CA
205 OSO CREEK, CA
205 PETALUMA RIVER, CITY OF PETALUMA, CA
205 SAN PEDRO CREEK, CITY OF PACIFICA, CA
205 TELEGRAPH CANYON CREEK, CA
205 WHITE SLOUGH, CA

** STATE CM

14 GARAPAN BEACH ROAD, CM
14 SAIPAN BEACH ROAD, SAIPAN, CM

** STATE CO

14 HIGHWAY 194, BENT'S OLD FORT, ARKANSAS R, LA JUNTA, CO
14 SOUTH PLATTE RIVER BRIDGE 87, CO
14 SOUTH PLATTE RIVER, FORT LUPTON (LAGOON), CO
14 SOUTH PLATTE RIVER, LOGAN COUNTY BRIDGES, CO
14 SOUTH PLATTE RIVER, WELD COUNTY BRIDGE 28, CO
14 SOUTH PLATTE RIVER, WELD COUNTY BRIDGE 61, CO
205 COLORADO R, GRAND JUNCTION, CO
205 VAN BIBBER CREEK, ARVADA, CO

** STATE CT

14 CONNECTICUT RIVER, MIDDLETOWN, CT
14 FARMINGTON R, SIMSBURY, CT
103 POINT BEACH, MILFORD, CT
103 PROSPECT BCH, WEST HAVEN, CT
103 SANDY POINT OUTFALL, WEST HAVEN, CT
103 SEA BLUFF BCH, WEST HAVEN, CT
103 SILVER TO CEDAR BEACHES, MILFORD, CT
103 WEST SILVER SANDS BEACH, EAST HAVEN, CT
103 WOODMONT BCH, MILFORD, CT
205 MAD R, WOODTICK, WATERBURY, CT
205 SHETUCKET RIVER, SPRAGUE, CT
205 WEST RIVER, NEW HAVEN, CT

** STATE DE

107 WILMINGTON HARBOR CHANNEL, DE
205 LITTLE MILL CREEK, NEW CASTLE COUNTY, DE

ACTIVE OR COMPLETED CONTINUING AUTHORITY PROJECTS
UNDERWAY DURING THE PERIOD OCTOBER 1991 THRU MARCH 1995

SECTION PROJECT NAME

** STATE FL

14 BOGGY BAYOU, VALPARAISO, FL
14 BRADENTON BEACH, FL
14 FORT CLINCH, NASSAU COUNTY, FL
14 GULF BREEZE, FL
103 LITTLE TALBOT ISLAND, FL
107 BAYPORT HARBOR, HERNANDO COUNTY, FL
107 CEDAR ISLAND - KEATON BEACH, FL
107 FERNANDINA HARBOR, FL
107 OCHLOCKONEE BAY, WAKULLA COUNTY, FL
107 PORT EVERGLADES, FL
107 SALT RUN, ST AUGUSTINE, FL
205 CEDAR CREEK, JACKSONVILLE, FL
205 CEDAR HAMMOCK, BRADENTON, FL
205 GOVERNMENT CENTER, NORTH MIAMI BEACH, FL
205 ITCHEPACKASASSA CREEK, POLK COUNTY, FL
205 NORTH SHORE, SANTA ROSA ISLAND, FL
205 PENSACOLA BEACH, FL
205 WEST MAULE LAKE, NORTH MIAMI BEACH, FL
205 WHITAKER BAYOU, FL

** STATE GA

107 OOSTANAULA AND COOSA RIVERS, GA
107 SOUTH BRUNSWICK RIVER, GA
107 WENTWORTH CHANNEL, SAVANNAH HARBOR, GA
205 CASEY CANAL, SAVANNAH, GA
205 CHATHAM COUNTY STREAMS, GA
205 CRANES CREEK, RICHMOND COUNTY, GA
205 DOWNTOWN DRAIN, SAVANNAH, GA
205 FELL STREET DRAIN, SAVANNAH, GA
205 MILL CREEK, DALTON, GA
205 OCMULGEE RIVER LEVEE, MACON, GA
205 PEACHTREE CREEK BASIN, ATLANTA, GA
205 PROCTOR CR, ATLANTA, GA
205 RACCOON CREEK, BACONTON, GA
205 SILVER CR, ROME, GA
205 SILVER CREEK TRIBUTARY, ROME, GA
205 SWIFT CREEK, TOOMBS COUNTY, GA
205 WILSHIRE CANAL, SAVANNAH, GA

** STATE GU

14 AGAT SOUTH (ROUTE 2), GU
14 POWER PLANT ROAD, CABRAS ISLAND, GU
103 COMMERCIAL PORT ROAD, CABRAS ISLAND, GU

** STATE HI

14 ALII DRIVE, KAILUA-KONA, HAWAII, HI
14 HAUULA HIGHWAY, OAHU, HI
14 KAAAWA HIGHWAY, OAHU, HI
14 LAUNIUPOKO, MAUI, HI
14 PUNALUU HIGHWAY, OAHU, HI
103 SAND ISLAND, OAHU, HI
107 KAHULUI HARBOR, MAUI, HI
107 KAHULUI SMALL BOAT HARBOR, MAUI, HI
205 KAHAWAINUI STREAM, LAIE, OAHU, HI
205 KAWAINUI MARSH, OAHU, HI
205 PALAI STREAM, ISLAND OF HAWAII, HI
205 PUNA AREA, ISLAND OF HAWAII, HI
205 WAIAKEA STREAM, ISLAND OF HAWAII, HI
205 WAILELE STREAM, LAIE, OAHU, HI

** STATE IA

14 CLAYTON, IA
14 CLAYTON COUNTY BRIDGE AT OSTERDOCK, IA
14 CLAYTON COUNTY ROAD 1712, OSTERDOCK, IA
14 CLAYTON COUNTY ROAD SITE 2, IA
14 EAST NISHNABOTNA RIVER, PAGE COUNTY BRIDGE, IA
14 FOX RIVER BRIDGE SITE #4, DAVIS COUNTY, IA
14 FOX RIVER BRIDGE SITE #7, DAVIS COUNTY, IA
14 FOX RIVER, ROUTE J40 BRIDGE, DAVIS COUNTY, IA

ACTIVE OR COMPLETED CONTINUING AUTHORITY PROJECTS
UNDERWAY DURING THE PERIOD OCTOBER 1991 THRU MARCH 1995

SECTION PROJECT NAME

14 MAQUOKETA RIVER, COUNTY ROAD D-47, DELAWARE COUNTY, IA
 14 MISSISSIPPI RIVER, RIVERVIEW STREET, BELLEVUE, IA
 14 NORTH FORKMAQUOKETA RIVER, GAS PIPELINES, CASCADE, IA
 14 SOAP CREEK BRIDGE SITE #3, DAVIS COUNTY, IA
 14 SOUTH RACCOON RIVER, DEXTER, IA
 14 TURKEY RIVER, COUNTY ROAD 1620, CLAYTON COUNTY, IA
 14 WEST FORK 102 RIVER, TAYLOR COUNTY BRIDGE J55, IA
 14 WEST NODAWAY RIVER PIPELINE, CLARINDA, IA
 205 CEDAR FALLS-BLACK HAWK CO, IA
 205 NISHNABOTNA RIVER AND MAIN DITCH 6, HAMBURG, IA
 205 OELWEIN, IA
 205 RACCOON RIVER, DES MOINES, IA
 205 ROCK RIVER, ROCK RAPIDS, IA
 205 TAMA-IOWA RIVER, IA
 205 WEST NISHNABOTNA RIVER, AVOCA, IA

** STATE ID
 14 LITTLE WEISER RIVER, GLADHEART LANE, ID
 14 SNAKE RIVER ABOVE BLACKFOOT, ID
 14 SNAKE RIVER, FORT HALL LANDMARK, BLACKFOOT, ID

** STATE IL
 14 EMBARRASS RIVER, STE MARIE, IL
 14 FAYETTE COUNTY RD. 23 AND KASKASKIA RIVER, IL
 14 MAZON RIVER, GOOSE LAKE TOWNSHIP, GRUNDY COUNTY, IL
 205 CHANDLERVILLE, IL
 205 CITY OF OAK FOREST, COOK COUNTY, IL
 205 EAST PEORIA, IL
 205 GRAND TOWER DRAINAGE AND LEVEE DISTRICT LEVEE, IL
 205 LITTLE CALUMET RIVER, SOUTH HOLLAND, IL
 205 LIVERPOOL-ILL RIV, IL
 205 MCCOOK LEVEE, MCCOOK, IL
 205 MCHENRY/KANE CO-FOX RIV, IL
 205 MISSISSIPPE RIVER LEVEE SYSTEM, MONROE COUNTY, IL
 205 MODOC L & D DISTRICT, IL
 205 MONTICELLO AVENUE, CHICAGO, IL
 205 NORTH LIBERTYVILLE ESTATES, IL
 205 PRAIRIE DU PONT L&SD, ST. CLAIR COUNTY, IL
 205 SOUTHEAST OTTAWA TOWNSHIP, IL
 205 STEVENS CREEK, VILLAGE OF FORSYTH, IL
 205 TINLEY CREEK, COOK COUNTY, IL
 205 VALLEY VIEW, UNINCORPORATED DUPAGE COUNTY, IL
 205 VILLAGE OF PALOS PARK, COOK COUNTY, IL

** STATE IN
 14 BLUE BLUFF ROAD, MORGAN COUNTY, IN
 14 CROOKED CREEK, CITY GARAGE, MADISON, IN
 14 CROOKED CREEK, J. PAUL PARK, MADISON, IN
 14 EAGLE CREEK, WATERFRONT PARK, INDIANAPOLIS, IN
 14 INDIAN CREEK, BURTON ROAD, MORGAN COUNTY, IN
 14 KANKAKEE RIVER, RAMSEY'S LANDING, JASPER COUNTY, IN
 14 LITTLE BLUE RIVER, SHELBY COUNTY, IN
 14 NAMELESS CREEK, COUNTY ROAD 850N, WARREN COUNTY, IN
 14 SUGAR CREEK, WATERMELON HOLLOW ROAD, MONTGOMERY CO, IN
 14 WABASH RIVER, TERRE HAUTE, IN
 14 WHITE LICK CREEK, BOTTOM ROAD, IN
 14 WHITE LICK CREEK, HENDERSON-FORD ROAD, IN
 14 WHITE RIVER, BLU BLUFF ROAD, MORGAN COUNTY, IN
 14 WHITWATER RIVER, BROOKVILLE, IN
 205 CROOKED CREEK, MADISON, IN
 205 DUCK CREEK ELWOOD, IN
 205 FEATHER CREEK CLINTON, IN
 205 FLATROCK RIVER, RUSHVILLE, IN
 205 JACKS DEFEAT CREEK, ELLETTSVILLE, IN
 205 KANKAKEE RIVER, LAKE AND NEWTON COUNTIES, IN
 205 LANCASSANGE CREEK CLARK COUNTY, IN
 205 PIGEON ROOST CREEK, SCOTTSBURG, IN
 205 PIPE CREEK, ALEXANDRIA, IN
 205 PLEASANT CREEK, GREENWOOD, IN
 205 SALT CREEK, NASHVILLE, IN
 205 WEST FORK BLUE RIVER, SALEM, IN
 205 WHITWATER RIVER HAGERSTOWN, IN
 205 WILDCAT CREEK, HOWARD COUNTY, IN
 205 WILDCAT CREEK, KOKOMO, IN
 208 SALAMONIE RIVER MONTPELIER, IN

ACTIVE OR COMPLETED CONTINUING AUTHORITY PROJECTS
UNDERWAY DURING THE PERIOD OCTOBER 1991 THRU MARCH 1995

SECTION PROJECT NAME

** STATE KS

14 CITY DAM, FALL RIVER, NEODESHA, KS
 14 CITY DAM, LITTLE CANEY RIVER, CANEY, KS
 14 DELAWARE RIVER WATER INTAKE, KICKAPOO RESERVATION, KS
 14 LITTLE BLUE R, WASHINGTON CO, SPENCE BRIDGE, KS
 14 LITTLE BLUE RIVER, WASHINGTON CO, SITE 1, KS
 14 REPUBLICAN RIVER, CLIFTON SEWAGE LAGOONS, KS
 14 ROCK CREEK, POTTAWATOMIE COUNTY BRIDGE, KS
 14 TRIBUTARY OF KILL CREEK, DESOTO SEWAGE PLANT, KS
 14 WALNUT RIVER, COWLEY COUNTY, KS
 205 BLUE RIVER BASIN, OVERLAND PARK, KS
 205 CROSS CREEK, ROSSVILLE, KS
 205 EUREKA VALLEY TRIBUTARY, RILEY COUNTY, MANHATTAN, KS
 205 LIBERAL, KS
 205 MILL CREEK, OLATHE, KS

** STATE KY

14 GREEN RIVER, CALHOUN, KY
 14 OHIO RIVER, BRANDENBURG, KY
 14 OHIO RIVER, CARROLLTON, KY
 14 OHIO RIVER, CITY PARK, WEST POINT, KY
 14 OHIO RIVER, DAVIESS COUNTY, KY
 14 OHIO RIVER, RUSSELL, KY
 205 ARLINGTON, KY
 205 BEECH FORK, BARDSTOWN, KY
 205 JONES RUN PUMP STATION, FRANKFORT, KY
 205 MAYFIELD CREEK, KY
 205 NORTH FORK KENTUCKY RIVER, JACKSON, KY

** STATE LA

14 BAYOU BARATARIA/IWW, JEAN LAFITTE, LA
 14 BAYOU DES GLAICES, MOREAUVILLE, LA
 14 HIGHWAY 119, DERRY, LA
 14 HIGHWAY 16, TANGIPAHOA RIVER, LA
 14 HIGHWAY 438 BRIDGE, BOGUE CHITTO RIVER, LA
 14 HIGHWAY 495, NATCHITOCHES PARISH, LA
 14 PARISH ROAD 218, MERMENTAU RIVER, GRAND CHENIER, LA
 14 STATE HIGHWAY 3066 BELOW INDIAN VILLAGE, LA
 14 US 190 BRIDGE, SABINE RIVER, MERRYVILLE, LA
 14 US HIGHWAY 65, EAST CARROLL PARISH, LA
 107 GIWW ALTERNATE ROUTE AT BAYOU SORREL LOCK, LA
 107 NORTH PASS-PASS MANCHAC, TANGIPAHOA PARISH, LA
 107 TAYLOR POINT CUT, ST. MARY PARISH, LA
 107 VERMILION RIVER, LA
 205 CHAUVIN BAYOU, LA
 205 CHOCTAW BAYOU & COULEE DES GRUES, AVOYELLES PARISH, LA
 205 JEAN LAFITTE, LA
 205 W14 CANAL BASIN, SLIDELL, LA
 205 W15 CANAL BASIN, SLIDELL, LA
 205 YOUNGS BAYOU, LA

** STATE MA

14 NASHUA RIVER, LEOMINSTER, MA
 14 NORTH NASHUA RIVER SEWER LINE, LEOMINSTER, MA
 14 OCEAN GROVE BEACH, SWANSEA, MA
 14 POINT SHIRLEY, WINTHROP, MA
 14 TOWN RIVER BAY, QUINCY, MA
 103 BLACK ROCK/SHORT BEACH, NAHANT, MA
 103 NANTASKET, MA
 103 NORTH NANTASKET BCH, HULL, MA
 107 AUNT LYDIA'S COVE, CHATHAM, MA
 107 GLOUCESTER HARBOR SHIP CHANNEL, MA
 107 GLOUCESTER HBR, GLOUCESTER, MA
 107 HYANNIS HARBOR, MA
 107 PROVINCETOWN HBR, MA
 107 SAUGUS R, SAUGUS, MA
 205 RIVERDALE, W. SPRINGFIELD, MA

** STATE MD

14 CHESAPEAKE BAY AT HOOPERSVILLE, MD
 14 ISLE OF WIGHT BAY, OCEAN CITY, MD
 14 MCREADY'S POINT, MD
 14 MIDDLE HOOPER ISLAND, MD
 14 PUNCH ISLAND ROAD, MD

ACTIVE OR COMPLETED CONTINUING AUTHORITY PROJECTS
UNDERWAY DURING THE PERIOD OCTOBER 1991 THRU MARCH 1995

SECTION PROJECT NAME

14 ROOSTER ISLAND, MD
 14 SOLOMON'S ISLAND, CALVERT COUNTY, MD
 103 NORTH BEACH, CALVERT COUNTY, MD
 107 CRISFIELD HARBOR, MD
 107 DEAL ISLAND, SOMERSET COUNTY, MD
 107 ISLAND CREEK, ST. GEORGE ISLAND, ST. MARY'S COUNTY, MD
 107 KENT NARROWS, MD
 107 LOWER THOROFARE-DEAL ISLAND, SOMERSET COUNTY, MD
 107 NEALE SOUND, MD
 107 PLEASURE ISLAND CHANNEL, MD
 107 SHALLOW CREEK SPUR CHANNEL, MD
 107 TEDIOUS CREEK, DORCHESTER COUNTY, MD
 205 GWYNNS FALLS, BALTIMORE CITY, MD

** STATE ME
 14 MACHIAS BAY, ROUTE 92, MACHIASPORT, ME
 14 MILBRIDGE, ME
 14 SEBAGO LAKE, STANDISH, ME
 103 WILLS AND DRAKES ISLAND BEACHES, WELLS, ME
 107 PERKINS COVE, OGUNQUIT, ME
 107 WOOD ISLAND HARBOR, BIDDEFORD, ME
 111 CAMP ELLIS, SACO, ME

** STATE MI
 14 BARAGA CO-ST HWY M38-US41, MI
 14 DUCK L-FRUITLAND TWP-MUSK, MI
 14 FAIR HAVEN, ST. CLAIR COUNTY, MI
 14 LAKE CHARLEVOIX, E JORDAN, MI
 14 MUSKEGON, SCENIC DRIVE, MI
 14 RIVER RAISIN, VILLAGE OF DUNDEE, MONROE COUNTY, MI
 14 ST. JOSEPH RIVER, BUCHANAN TOWNSHIP, MI

** STATE MN
 14 BIG FORK RIVER, MN
 14 HENNEPIN COUNTY CSAH 116, MN
 14 HIGHWAY 23/14, JACKSON COUNTY, MN
 14 HIGHWAY 23/8, JACKSON COUNTY, MN
 14 MANKATO TOWNSHIP, MN
 14 MAPLE RIVER, STERLING CENTER, MN
 14 MINNESOTA RIVER, BELGRADE TOWNSHIP, MN
 14 MISSISSIPPI R, WARNER RD AT SIBLEY ST, ST. PAUL, MN
 14 MISSISSIPPI RIVER, WABASHA, MN
 14 RAINY RIVER HISTORIC SITE, GRAND MOUND, MN
 14 RED LAKE RIVER, CROOKSTON, MN
 14 RED LAKE RIVER, STATE HIGHWAY 32, MN
 14 ROSEAU RIVER, ROSEAU, MN
 14 SOGN, MN
 14 ST. HILAIRE, MN
 14 VERNON CENTER, MN
 14 WABASHA COUNTY STATE AID HIGHWAY NO. 11, MN

14 WEST FORK DES MOINES RIVER, JACKSON COUNTY, MN
 205 ARGYLE-MIDDLE RIV, MN
 205 CHIPPEWA RIVER, MONTEVIDEO, MN
 205 CROW RIVER-ROCKFORD, MN
 205 ELK RIVER, LAKE ORONO, MN
 205 GARVIN BROOK, STOCKTON, MN
 205 GILMORE CREEK-WINONA, MN
 205 HENDERSON-MINNESOTA RIVER, MN
 205 KAWISHIWI RIVER, MN
 205 LAC QUI PARLE, MN
 205 LAKE PULASKI-WRIGHT CO, MN
 205 PERLEY, MN
 205 PIPESTONE CREEK, PIPESTONE, MN
 205 RED RIVER AT GRAND MARAIS OUTLET, MN
 205 ROOT RIVER, HOUSTON, MN
 205 SNAKE RIVER, ALVARADO, MN
 205 WILD RICE - MARSH RIVERS, MN
 205 WILD RICE RIVER, HENDRUM/LEE, MN
 208 SNAKE RIVER, VEGA/SANDSVILLE, MN
 208 SNAKE RIVER, WARREN, MN
 208 SOUTH TWO RIVER, MN

ACTIVE OR COMPLETED CONTINUING AUTHORITY PROJECTS
UNDERWAY DURING THE PERIOD OCTOBER 1991 THRU MARCH 1995

SECTION PROJECT NAME

** STATE MO

14 102 RIVER, HOPKINS BRIDGE, NODAWAY COUNTY, MO
 14 102 RIVER, NODAWAY CO. BRIDGE, MO
 14 102 RIVER, NODAWAY COUNTY BRIDGE, PICKERING, MO
 14 BEAR CREEK, 24-INCH SEWERLINE, WARRENSBURG, MO
 14 BEAR CREEK, 27-INCH SEWERLINE, WARRENSBURG, MO
 14 BLUE RIVER, GREGORY BOULEVARD NEAR KANSAS CITY, MO
 14 COUNTY ROAD 528, NORTH FORK CUIVRE R, LINCOLN CO., MO
 14 COUNTY ROAD 725, SAND RUN CREEK, LINCOLN COUNTY, MO
 14 COUNTY ROAD 729, BIG CREEK, LINCOLN COUNTY, MO
 14 CUIVRE RIVER, LINCOLN COUNTY ROAD 984, MO
 14 GRAND RIVER, SALT CREEK BRIDGE, CHARITON COUNTY, MO
 14 HINKSON CREEK, COLUMBIA SEWERLINE, MO
 14 MARMATON RIVER, VERNON COUNTY ROAD, MO
 14 MCKELVEY SCHOOL, SMALL L&DD, ALEXANDER, MO
 14 OSAGE RIVER, LAKE OZARK SEWERLINE, MO
 14 PARKWAY SCHOOL DISTRICT, ST. LOUIS, MO
 - 14 SOUTH SENIOR HIGH SCHOOL, ST. LOUIS, MO
 14 TOWER GROVE PARK, ST. LOUIS, MO
 14 WEST FORK GRAND RIVER, STATE ROAD 46A, MO
 107 CAPE GIRARDEAU AND SCOTT COUNTIES, MO
 107 SOUTHEAST MISSOURI PORT, MO
 205 BLACK RIVER, BUTLER COUNTY, MO
 205 BLACK RIVER, POPLAR BLUFF, MO
 205 BOIS BRULE L & D DISTRICT, MO
 205 MITCHELL & PEARSON CREEKS, WAYNESVILLE, MO
 205 ST. PETERS, MO

** STATE MS

14 BAYVIEW COURT, MS
 14 COUNTY LINE ROAD BRIDGE, MANTACHIE, MS
 14 CULLEY-BRASHEAR DIVERSION DITCH, MADISON COUNTY, MS
 14 DILLON'S BRIDGE, BOGUE CHITTO RIVER, WALTHALL CO, MS
 14 HANCOCK COUNTY SEAWALL, MS
 14 HIGHWAY 80 AT CLEAR CREEK, WARREN COUNTY, MS
 14 HURRICANE CR, MARIETTA- HAZELDELL RD, MS
 14 KINGS CREEK, MS
 14 ROUND ISLAND, MS
 14 TOMBIGBEE RIVER BRIDGE NO. 6, MONROE COUNTY, MS
 14 WAVELAND, MS
 103 NORTH BEACH BOULEVARD, HANCOCK COUNTY, MS
 205 MAGBY CREEK, COLUMBUS, MS
 205 MILL CREEK, MCGEE, MS
 205 MILL CREEK, SUMRALL, MS
 205 PORTER BAYOU, MS
 205 TALLAHALA CR, LAUREL, MS
 205 UPPER GORDONS CREEK, HATTIESBURG, MS
 208 HATCHIE RIVER, ALCORN & TIPPAN COUNTIES, MS

** STATE MT

14 BADGER CREEK NEAR BROWNING, GLACIER COUNTY, MT
 14 CLARK FORK RIVER NEAR GARRISON, MT
 14 DEARBORN RIVER NRAR WOLF CREEK, LEWIS & CLARK CO., MT
 14 GALLATIN RIVER, I-90, GALLATIN COUNTY, MT
 14 MUDDY CREEK, CASCADE COUNTY ROADVAUGHAN, MT
 14 SHIELDS RIVER, US HIGHWAY 89, PARK COUNTY, MT
 14 TETON RIVER NEAR CHOTEAU, STATE HIGHWAY 89, MT
 14 YELLOWSTONE RIVER, FAP ROUTE 11, LIVINGSTON, MT
 14 YELLOWSTONE RIVER, HIGHWAY 89 BRIDGE, LIVINGSTON, MT
 205 FLATHEAD RIVER NEAR KALISPELL, MT
 - 205 MILK RIVER AT MALTA, MT

** STATE NC

14 COROLLA, WHALEHEAD CENTER, NC
 14 DARE COUNTY, AQUARIUM, NC
 14 KING (WATER PLANT), NC
 14 SOUTH AVENUE, ORIENTAL, NC
 14 WALNUT STREET, THOMASVILLE, NC
 107 CALABASH CREEK, BRUNSWICK COUNTY, NC
 107 CROWS NEST CHANNEL, NC
 107 HARPERS ISLAND, CARTERET COUNTY, NC
 107 MOREHEAD CITY HARBOR, WEST TURNING BASIN EXTENSION, NC
 107 STYRONS CREEK, CARTERET COUNTY, NC
 107 TARKLIN CREEK, BEAUFORT COUNTY, NC
 107 WILMINGTON HARBOR PASSING LANE, NC

ACTIVE OR COMPLETED CONTINUING AUTHORITY PROJECTS
UNDERWAY DURING THE PERIOD OCTOBER 1991 THRU MARCH 1995

SECTION PROJECT NAME

205 ADKIN BRANCH, KINSTON, NC
 205 CLINTON WATER TREATMENT PLANT, CLINTON, NC
 205 HOMINY SWAMP, WILSON, NC
 205 LITTLE ROCKFISH CREEK, CUMBERLAND COUNTY, NC
 205 LOWER CREEK, LENOIR, NC
 205 MORAVIAN CREEK, WILKESBORO, NC
 205 TRENT RIVER, JONES COUNTY, NC

** STATE ND
 14 CANNONBALL RIVER, SHIELDS, ND
 14 MANVEL, ND
 14 OXBOW, CASS COUNTY, ND
 205 DEVILS LAKE, ND
 205 MORAIS RIVER, ND
 208 BIG COULEE, ND
 208 RED RIVER OF THE NORTH, FARGO & MOORHEAD, ND

** STATE NE
 14 BEAVER CREEK, PLATTE COUNTY, NE
 14 BEEMER, CUMMING COUNTY BRIDGE, ELKHORN RIVER, NE
 14 BIG BLUE RIVER, BLUE SPRINGS, SEWERLINE, NE
 14 CASS COUNTY, FOUR-MILE CREEK BRIDGE, NE
 14 CEDAR RIVER, SPAULDING HYDRO PLANT, NE
 14 EAST BOW CREEK, WYNOT, NE
 14 LITTLE BLUE R, THAYER CO, GILEAD NORTH BRIDGE, NE
 14 NINE MILE DRAIN, SCOTTSBLUFF COUNTY ROAD, NE
 14 NIOBRARA RIVER, BASSETT, NE
 14 PLUM CREEK, NORDEN DAM ACCESS ROAD BRIDGE, NE
 14 SOUTH FORK ELKHORN RIVER, HOLT COUNTY, NE
 14 SOUTHTABLE CREEK, NEBRASKA CITY, NE
 205 DEAD MAN'S RUN, LINCOLN, NE
 205 EAST FORK MAPLE CREEK, HOWELLS, NE
 205 LODGEPOLE CREEK, SIDNEY, NE
 205 LOGAN CREEK, PENDER, NE
 205 LOST CREEK AT COLUMBUS, NE
 205 PEBBLE CREEK AT SCRIBNER, NE
 205 SALT CREEK LEVEES, LINCOLN, NE

** STATE NH
 205 ISRAEL RIVER, LANCASTER, NH

** STATE NJ
 14 MANASQUAN RIVER, HOWELL TOWNSHIP, NJ
 103 SEASIDE PARK, NJ
 107 BELFORD HARBOR, NJ
 107 GARDNERS BASIN, NJ
 107 WILLS HOLE THOROPFARE PT PLEASANT, NJ
 205 ELIZABETH RIVER, HILLSIDE, NJ
 205 MILL BROOK, HIGHLAND PARK, NJ
 205 NORTH BRANCH NEWTON CREEK, WOODLYNNE, NJ
 205 NORTH BRANCH RANOCAS CREEK, NJ
 205 POPLAR RIVER, NJ
 205 SHABAKUNK CREEK, EWING TOWNSHIP, NJ

** STATE NM
 14 ALAMEDA STREET, SANTA FE RIVER, SANTA FE, NM
 14 CAMINO ALIRE BRIDGE, SANTA FE RIVER, SANTA FE, NM
 14 HAMPTON ARROYO AT MCCOY STREET, AZTEC, NM
 14 HIGHWAY 62 BRIDGE, SANTA FE RIVER, SANTA FE COUNTY, NM
 14 HIGHWAY 75, EMBUDO CREEK, RIO ARRIBA, NM
 14 MADRID FIRE STATION, MADRID ARROYO, NM
 14 SAN ISIDRO ROAD, SANTA FE, NM
 14 SOUTHERN BOULEVARD, BLACK'S ARROYO, RIO RANCHO, NM
 14 STATE ROAD 12, STARK WEATHER RIVER, RESERVE, NM
 14 STATE ROAD 44, RIO SALADO, SAN YSIDRO, NM
 205 LITTLE PUERCO RIVER, GALLUP, NM
 205 ZUNI RIVER, ZUNI, NM
 208 GALLINAS R, LAS VEGAS, NM

** STATE NV
 208 MEADOW VALLEY WASH, CITY OF CALIENTE, NV

** STATE NY
 14 CANADAWAY CREEK. FREDONIA SEWAGE LINE, DUNKIRK, NY
 14 CATTARAUGUS CREEK, VILLAGE OF ARCADE SEWERLINE, NY

ACTIVE OR COMPLETED CONTINUING AUTHORITY PROJECTS
UNDERWAY DURING THE PERIOD OCTOBER 1991 THRU MARCH 1995

SECTION PROJECT NAME

14 CHADAKOIN RIVER, JAMESTOWN, NY
 14 FREDONIA-LAKE ERIE, NY
 14 MILL RUN, SINCLAIRVILLE, NY
 14 SENECA FALLS, NY
 14 SHELTER ISLAND, NY
 103 ASHAROKEN VILLAGE, NORTHPORT, NY
 103 OAKWOOD BEACH, STATEN ISLAND, NY
 103 RIKERS ISLAND CORRECTIONAL FACILITY, NY
 107 EVANS-STURGON PT MARINA-L, NY
 107 ROCHESTER HARBOR (WAVE SURGE), NY
 205 CROSS LAKE, NY
 205 KEUKA LAKE OUTLET MOD, NY
 205 LIMESTONE CREEK, FAYETTEVILLE, NY
 205 MANLIUS-WEST BR LIMSTNE C, NY
 205 ONEIDA-ONEIDA CREEK, NY
 205 PORT JERVIS, NY
 205 SAUQUOIT CREEK, WHITESBORO, NY
 205 WEST BRANCH DELAWARE RIVER, VILLAGE OF STAMFORD, NY
 205 YONKERS, NEPERA PARK, NY

** STATE OH
 14 BRECKSVILLE ROAD, INDEPENDENCE, OH
 14 KIRTLAND HILLS, SPERRY RD-E BR, OH
 14 LAKE ERIE AT DOMONKAS LIBRARY, CITY OF SHEFFIELD, OH
 14 MAHONING RIVER, WARREN, OH
 14 MUSKINGUM RIVER HARBOR, MARIETTA, OH
 14 NIMISHILLEN CR., EAST SPARTA, OH
 14 OHIO RIVER BOAT LEVEE, MARIETTA, OH
 14 OHIO RIVER SEWERLINE, MARIETTA, OH
 14 OHIO RIVER, CHESIRE, OH
 14 OHIO RIVER, MIDDLEPORT, OH
 14 OHIO RIVER, NEW RICHMOND, OH
 14 PUBLIC ACCESS FACILITY, OHIO RIVER, GALLIPOLIS, OH
 14 SOUTH FORK, LICKING RUN JARDINS MANOR, OH
 14 VERMILION-LINWOOD PARK-L, OH
 103 ASHTABULA-LAKESHORE PARK, OH
 103 CENTURY PARK, LORAIN, OH
 103 SIMS PARK, EUCLID, OH
 107 LAKE ERIE AT COOLEY CANAL, LUCAS COUNTY, OH
 107 TOUSSAINT RIVER, CARROLL TOWNSHIP, OH
 205 BUCK DITCH, FORT RECOVERY, OH
 205 CLEVELAND-EUCLID CREEK, OH
 205 GRAND RIVER, FAIRPORT, OH
 205 GREAT MIAMI RIVER PORT JEFFERSON, OH
 205 HARGUS CREEK, CIRCLEVILLE, OH
 205 LITTLE YANKEE CREEK, HUBBARD, OH
 205 MILL CREEK, GARFIELD HEIGHTS, OH
 205 PEPPER CREEK, PEPPER PIKE, OH
 205 SUGAR CREEK BELLBROOK, OH
 205 SWAN CREEK, TOLEDO, OH

** STATE OK
 14 ARKANSAS RIVER, SAND SPRINGS, OK
 14 COUNTY BRIDGE, ARKANSAS RIVER, RALSTON, OK
 14 COUNTY ROAD & BRIDGE, WASHITA RIVER, GARVIN COUNTY, OK
 14 KIOWA TRIBE HOUSING DEVELOPMENT, ANADARKO, OK
 14 LAGOON, CHIKASKIA RIVER, FORT OAKLAND, OK
 14 LEVEE, ARKANSAS RIVER, TULSA, OK
 14 SEWAGE LAGOON, WASHITA RIVER, ALEX, OK
 14 STATE HWY 84, N CANADIAN, OKFUSKEE, OK
 205 COODY CREEK AND TRIBS, MUSKOGEE, OK
 205 NORTH CANADIAN WWTP, OKLAHOMA CITY, OK
 205 WOLF CREEK, LAWTON, OK

** STATE OR
 14 GRANDE RONDE R, SPRUCE ST. BRIDGE & RIVERSIDE PARK, OR
 14 MILL CREEK SALEM, OR
 14 ROGUE RIVER, GRANTS PASS, OR
 14 SANDY RIVER, CITY OF TROUTDALE, OR
 107 NEWPORT, OR
 107 PORT OF MORROW, MORROW COUNTY, OR
 107 TONGUE POINT, OR
 111 UMPQUA RIVER WINCHESTER BAY, OR
 205 LAKESIDE, OR
 205 NEHALEM RIVER, SUNSET DRAINAGE DISTRICT, OR

ACTIVE OR COMPLETED CONTINUING AUTHORITY PROJECTS
UNDERWAY DURING THE PERIOD OCTOBER 1991 THRU MARCH 1995

SECTION PROJECT NAME

205 PENINSULA DRAINAGE DISTRICT NO 1, PORTLAND, OR
205 SCAPPOOSE, OR
205 WARRENTON DIKING DISTRICT NO 1, OR

** STATE PA
14 BRUSH CREEK, JEANATTE, PA
14 BUFFALO CREEK SEWAGE TREATMENT PLANT, FREEPORT, PA
14 CHUBB RUN, FRANKLIN, PA
14 CONNEAUT LAKE, PA
14 FRENCH CREEK, WATERBURY, PA
14 MILLERS RUN, CECIL TOWNSHIP, PA
14 NELSON RUN, ROSS TOWNSHIP, PA
14 PLUM CREEK, BOROUGH OF OAKMONT, PA
14 SHUPE RUN, MT PLEASANT, PA
14 SOLOMONS CREEK, ASHLEY, PA
14 SPRING BROOK CREEK, PITTSTON TOWNSHIP, PA
14 STONEY CREEK, EAST NORRISTON, PA
14 TUNKHANNOCK CREEK LEVEE RESTORATION, PA
14 WALNUT BOTTOM RUN, BEAVER FALLS, PA
205 ALLEGHENY RIVER, OIL CITY, PA
205 BLOOMSBURG, PA
205 CLARION RIVER, RIDGEWAY, PA
205 CONNELLSVILLE, PA
205 CONQUENESSING CREEK, MAEION TOWNSHIP, PA
205 DARBY CREEK, COLWYN BOROUGH, PA
205 DARBY CREEK, DARBY BOROUGH, PA
205 DELAWARE CANAL, BUCKS COUNTY, PA
205 DUNLAP CREEK, REDSTONE, PA
205 JACKSON TOWNSHIP, BUTLER COUNTY, PA
205 MARTINS CREEK, TULLYTOWN, PA
205 MILL CREEK, UPPER MORELAND TOWNSHIP, PA
205 NAYLORS RUN, COBB CREEK, PA
205 PALMERTOWN, PA
205 PAXTON CREEK, HARRISBURG, PA
205 POQUESSING CREEK, PA

** STATE PR
103 EL TERREPLEN PINONES, PR
107 AGUADILLA HARBOR, PR
107 ARROYO HARBOR, ARROYO, PR
107 ISLAND OF VIEQUES, PR
107 PLAYA DE PONCE, PR
205 QUEBRADA BLASINIA, CAROLINA, PR
205 RIO ANTON RUIZ, PUNTA SANTIAGO, PR
205 RIO CIBUCO, VEGA BAJA, PR
205 RIO CIDRA, LA PLAYITA, ADJUNTAS, PR
205 RIO CULEBRAS, AGUADA, PR
205 RIO CULEBRINA & CANO MADRE VIEJA, AGUADA, PR
205 RIO EL OJO DE AGUA, AGUADILLA, PR
205 RIO FAJARDO, PR
205 RIO GUAMANI, GUAYANA, PR
205 RIO JACAGUAS, JUANA DIAZ, PR
205 RIO LOCO, GUANICA, PR
205 RIO MANATI AT BARCELONETA, PR
205 RIO PATTILLAS, PATILLAS, PR
205 RIO YAUCO, YAUCO, PR
205 SABANA GRANDE, PR
208 JUAN MENDEZ CHANNEL, PR

** STATE RI
107 SEEKONK RIVER, PAWTUCKET, RI

** STATE SC
14 39TH AVENUE NORTH BRIDGE, MYRTLE BEACH, SC
14 48TH AVENUE SOUTH BRIDGE, MYRTLE BEACH, SC
14 DRAYTON HALL, CHARLESTON COUNTY, SC
14 INDIAN BLUFF PARK, EUTAWVILLE, SC
14 PINOPOLIS DAM, SC
14 SANTEE DAM, SC
14 SHORE DRIVE, SINGLETONS WASH, MYRTLE BEACH, SC
14 SOUTH CAROLINA DOT BRIDGES, SC
103 ARCADIA SHORES AREA, Horry COUNTY, SC
103 BATTERY PRINGLE, ST. JAMES ISLAND, SC
103 HILTON HEAD ISLAND, SC
107 SHIPYARD RIVER, CHARLESTON, SC

ACTIVE OR COMPLETED CONTINUING AUTHORITY PROJECTS
UNDERWAY DURING THE PERIOD OCTOBER 1991 THRU MARCH 1995

SECTION PROJECT NAME

205 CAMDEN CREEK, KERSHAW COUNTY, SC
 205 EAGLE CREEK, DORCHESTER CO., SC
 205 HARDEVILLE, SC
 205 HILLSIDE DRAINAGE BASIN, NORTH MYRTLE BEACH, SC
 205 JASPER COUNTY STREAMS, SC
 205 LAWSON FORK BRANCH, SPARTANBURG COUNTY, SC
 205 PLUM ISLAND WASTEWATER TREATMENT PLANT, SC
 205 POMPERDAM CREEK, NORTH CHARLESTON, SC
 205 SANDERS BRANCH & CROOKED CREEK, HAMPTON COUNTY, SC
 205 SELLERS BRANCH, SELLERS, SC
 205 SOCASTEE CREEK HORRY COUNTY, SC
 205 TURKEY CREEK, SUMTER COUNTY, SC

** STATE SD
 14 WHITE RIVER, TRIPP COUNTY, SD
 205 OAK CREEK, WAKPALA, SD

** STATE TN
 14 CLINCH RIVER, ROUTE 58, KINGSTON, TN
 14 CUMBERLAND R, TED RHODES GOLF COURSE, NASHVILLE, TN
 14 CUMBERLAND RIVER AT METRO NASHVILLE LANDFILL, TN
 14 CUMBERLAND RIVER, NASHVILLE (ELEC XMISSION TOWER), TN
 14 DUCK RIVER AT I-40 BRIDGE, HICKMAN COUNTY, TN
 14 DUCK RIVER, HOWARD BRIDGE, MAURY COUNTY, TN
 14 EMORY RIVER, HARRIMAN, TN
 14 FERGUSON ROAD BRIDGE, HARRINGTON CREEK, BARTLETT, TN
 14 FLETCHER CREEK, MEMPHIS, TN
 14 MCGREGOR PARK, CLARKSVILLE, TN
 14 PERKINS STREET BRIDGE, TN
 14 POND CREEK AT TN SR 251, CHEATHAM COUNTY, TN
 14 QUINCE ROAD BRIDGE, TN
 14 SAVANNAH CITY PARK, SAVANNAH, TN
 14 SEQUAYAH HILLS PARK (DIRECTED WORK), KNOXVILLE, TN
 14 SOUTH HOLSTON RIVER, KINGSPOET, TN
 14 TENNESSEE R, U OF TENN EXPERIMENT STA, KNOXVILLE, TN
 14 TENNESSEE RIVER, ALCOA HIGHWAY, KNOXVILLE, TN
 14 TENNESSEE RIVER, SEQUOYAH HILLS PARK, KNOXVILLE, TN
 14 TENNESSEE RIVER, SEWER LINE AT CHATTANOOGA, TN
 14 WOLF RIVER, ROUTE 51 BRIDGE, MEMPHIS, TN
 205 BROWNS CREEK NASHVILLE, TN
 205 CLEAR FORK RIVER, CLAIRFIELD, TN
 205 DRY CREEK, GOODLETTSVILLE, TN
 205 ELK CREEK TRIBUTARY, TN
 205 HILLS CREEK, WARREN COUNTY, TN
 205 LITTLE LIMESTONE CREEK, JONESBOROUGH, TN
 205 LOVE'S CREEK TRIBUTARY, KNOXVILLE, TN
 205 MILLINGTON, TN
 205 RICHLAND CREEK, MORGANTOWN, TN
 205 SEQUATCHIE RIVER, MARION COUNTY, TN
 205 SINKING CREEK, LEBANON, TN
 205 SINKING CREEK, MURFREESBORO, TN
 205 TAR CREEK, CHESTER COUNTY, TN

** STATE TX
 14 BEAR CREEK, COUNTY ROAD 485, COLLIN COUNTY, TX
 14 BELTLINE ROAD, COTTONWOOD CREEK, RICHARDSON, TX
 14 BUFFALO BAYOU, PINEY POINT VILLAGE, TX
 14 CAT CLAW CRK, ABILENE, TX
 14 DUDLEY BRANCH, HEBRON PARKWAY, CARROLTON, TX
 14 FURNEAUX CREEK, CARROLLTON, TX
 14 HIGHWAY 111, LAKE TEXANA, TX
 14 HUTTON BRANCH, REACH H, STREAM 6D3, CARROLTON, TX
 14 MARY'S CREEK, FORT WORTH, TX
 14 PARK ROW, ARLINGTON, TX
 14 ROARING SPRINGS ROAD, WESTOVER HILLS, TX
 14 WASHINGTON ON THE BRAZOS STATE PARK, TX
 14 WASHINGTON STREET BRIDGE, LAREDO, TX
 111 PORT ARANSAS, TX
 205 10 MILE CREEK, DESOTO, TX
 205 CALLOWAY BRANCH, RICHLAND HILLS, TX
 205 DELAWARE CRK, IRVING, TX
 205 DRY BRANCH, IRVING AND GRAND PRAIRIE, TX
 205 DUCK CREEK, GARLAND, TX
 205 FARMERS BRANCH, WHITE SETTLEMENT, TX
 205 GREENTREE SUBDIVISION, MIDLAND DRAW, MIDLAND, TX

ACTIVE OR COMPLETED CONTINUING AUTHORITY PROJECTS
UNDERWAY DURING THE PERIOD OCTOBER 1991 THRU MARCH 1995

SECTION PROJECT NAME

205 GUADALUPE RIVER, VICTORIA, TX
 205 JOHNSON CREEK, ARLINGTON & GRAND PRAIRIE, TX
 205 JOHNSON CREEK, GRAND PRAIRIE, TX
 205 KIRBYVILLE, TX
 205 LOREAN BRANCH, HURST, TX
 205 MIDLAND/JAL DRAW, MIDLAND, TX
 205 OAK STREET BRIDGE, MIDLAND DRAW, MIDLAND, TX
 205 PLUM CREEK, WICHITA FALLS, TX
 205 POLE CAT CREEK, LACOSTE, TX
 205 SINGING HILLS CRK, WATAUGA, TX
 205 SOIUTH POLECAT CREEK, LA COSTE, TX
 205 SULPHUR CRK, EULESS, TX
 205 TEN MILE CREEK, LANCASTER, TX
 205 TRIBUTARY 1, RUSH CREEK, ARLINGTON, TX
 205 UPPER ZACATE CREEK, LAREDO, TX
 205 WALNUT BRANCH, SEGUIN, TX
 205 WALNUT CREEK, MANSFIELD, TX

** STATE UT
 14 DUCHESNE R, DUCHESNE, UT

** STATE VA
 14 CAPE CHARLES, NORTHAMPTON COUNTY, VA
 14 WEST ROANOKE COUNTY, VIRGINIA ROUTE 639, VA
 103 COLONIAL BEACH, VA
 107 BENNETT CREEK CITY OF SUFFOLK, VA
 107 COAN RIVER, VA
 107 HUNTING-GUILFORD CREEKS, VA
 107 JONES CREEK, VA
 107 MESSICK POINT, BACK RIVER, POQUOSON, VA
 107 NEWPORT NEWS CREEK, VA
 107 RUDEE INLET, VIRGINIA BEACH, VA
 107 YORK AND PAMUNKEY RIVERS, VA
 205 BLACKBERRY CREEK, HENRY COUNTY, VA
 205 BUCHANAN, BEOTOURT COUNTY, VA
 205 DANVILLE, VA
 205 SCOTTSVILLE, VA
 205 WEST RIVER ROAD NEAR WABAN, ROANOKE COUNTY, VA

** STATE VI
 14 CYRIL E. KING AIRPORT ROAD, ST. THOMAS, VI
 107 LIMETREE BAY, ST. CROIX, VI
 205 ESTATE LA GRANGE, VI
 205 ESTATE MON BIJOU, ST. CROIX, VI
 205 SAVAN GUT, CHARLOTTE AMALIE, VI
 205 SOTO TOWN, ST. THOMAS, VI
 205 TURPENTINE RUN, ST THOMAS, VI

** STATE WA
 14 CLALLAM BAY AT SEKIU, WA
 14 FOX ISLAND AT HALE PASSAGE, WA
 14 LUMMI SHORE ROAD, WHATCOM COUNTY, WA
 14 MANITOU BEACH ROAD, MURDEN COUNTY, WA
 14 PATAHA CREEK, POMEROY, WA
 14 WILLOW CREEK BELOW LA CROSSE, WA
 103 LINCOLN PARK BEACH SEATTL, WA
 103 LUMMI SHORE ROAD, WA
 107 COLUMBIA RIVER DDA VANCOUVER, WA
 107 KEYSTONE HARBOR, ADMIRALTY INLET, WA
 107 NAHCOTTA, WA
 107 NEAH BAY, WA
 107 SNAKE RIVER NEAR BURBANK, WA
 107 TOKE?LAND, WA
 107 WESTPORT, OR - PUGET ISLAND, WA, WA
 205 CEDAR RIVER, RENTON, WA
 205 HORSESHOE BEND, WA
 205 LONG ROAD FLOOD CONTROL DISTRICT, CHEHALIS RIVER, WA
 205 LOWER GREEN RIVER, TUKWILA, WA
 205 SKAGIT RIVER, WEST MOUNT VERNON, WA
 205 SNOQUALMIE, WA
 205 UPPER CEDAR RIVER, KING COUNTY, WA

ACTIVE OR COMPLETED CONTINUING AUTHORITY PROJECTS
UNDERWAY DURING THE PERIOD OCTOBER 1991 THRU MARCH 1995

SECTION PROJECT NAME

** STATE WI

14 MCKINLEY PARK, MILWAUKEE COUNTY, WI
14 MELROSE, WI
14 OCONTO RIVER, CITY OF OCONTO, WI
14 SOUTH SHORE PARK, MILWAUKEE COUNTY, WI
205 AVOCA, WI
205 BOSCOBEL-SANDERS CREEK, WI

** STATE WV

14 BIG SANDY RIVER, KENOVA, WV
14 COX RUN, WELLSBURG, WV
14 ELK RIVER, NUTTER FORT, WV
14 GLENDALE SEWER OUTFALL, WV
14 KANAWHA RIVER, ST. ALBANS, WV
14 KANAWHA RIVER, US ROUTE 60, SOUTH CHARLESTON, WV
14 KENOVA WATER LINES, NEAL, WV
14 MAIN STREET, WELLSBURG, WV
14 MIDDLE SCHOOL, WELLSBURG, WV
14 MUD RIVER, SEWAGE LAGOON, BARBOURSVILLE, WV
14 OHIO RIVER WILLIAMSTOWN, WV
14 OHIO RIVER, CHESTER, WV
14 OHIO RIVER, MOUNDSVILLE, WV
14 OHIO RIVER, RIVERSIDE DRIVE, ST. MARYS, WV
14 OHIO RIVER, ROUTE 2 NEAR POINT PLEASANT, WV
14 OHIO RIVER, SEWERAGE TREATMENT PLANT, MASON, WV
14 OHIO RIVER, SISTERSVILLE SEWERLINE, WV
14 POINT PLEASANT ST PK POINT PLEASANT, WV
14 SHORT CREEK, OHIO COUNTY, WV
14 SISTERSVILLE CITY PK, WV
14 SISTERSVILLE SEWAGE, WV
14 STATE ROUTE 62 BUFFALO, WV
14 TWELVEPEOPLE CREEK, WAYNE COUNTY, WV
14 WATER WORKS, WELLSBURG, WV
205 SPRING CREEK SPENCER, WV

** STATE WY

14 BALDWIN & SQUAW CREEKS, LANDER SEWAGE LAGOONS, WY
14 POWDER RIVER, ARVADA, WY
14 TONGUE RIVER, RANCHESTER, WY

Senator HATFIELD. What is the projected annual savings expected if the Continuing Authority programs are scrapped?

Dr. ZIRSCHKY. With the exception of FY 1995 when no new starts were requested and only \$26 million was budgeted, the Continuing Authorities Program has been funded in the \$40 million range in recent years.

Senator HATFIELD. Is there any reconsideration or review being given by the Corps or your colleagues at OMB to changing your planned termination of the Continuing Authority program.

Dr. ZIRSCHKY. It has not been reconsidered.

Senator HATFIELD. If not, are you still moving ahead to terminate these programs when they complete the current phase.

Dr. ZIRSCHKY. Under our phase-out procedure, we will approve new construction starts through Fiscal Year 1996. Any projects that are not scheduled to reach construction approval by 30 September 1996 will be terminated at the conclusion of the current phase.

Senator HATFIELD. If the Corps decides to moderate its plans to terminate all CA programs, will your budget cutback target be adjusted downward, or will the Corps be forced to look elsewhere for savings to offset changes in the CA termination?

Dr. ZIRSCHKY. In the event that the Continuing Authorities Program is maintained, we would identify the savings elsewhere in the program.

DEVELOPMENT OF MISSION CHANGES

MR. HATFIELD. Before you announced these initiatives, did you and OMB conduct any studies to evaluate the impact they will have on states and local communities who you expect to pick up the cost of flood control, beach replenishment, small port O&M and continuing authority programs? If so, can you please provide detail about them.

DR. ZIRSCHKY. No studies or analyses of the impact of these policies on the states and local communities have been performed.

MR. HATFIELD. For small port O&M specifically, did OMB request any Corps studies regarding the impact of this decision on the communities affected by this change?

DR. ZIRSCHKY. No studies of the impact were requested.

MR. HATFIELD. Did the Corps prepare any "economic impact" analysis for this, or for any of your other restructuring initiatives? If not, is this a sound management technique--or might someone compare it to "shoot first, then aim"?

DR. ZIRSCHKY. The Corps did not prepare any economic impact analyses for any of the policies announced with the budget.

MR. HATFIELD. Do you have any empirical data from past studies to estimate what the impact will be on those entities you expect to shoulder the financial burden of your decisions?

DR. ZIRSCHKY. I am not aware of any past studies that would relate to the current proposals.

MR. HATFIELD. Have you surveyed the states regarding flood control? I have many states volunteered to take over flood control projects which you want to abandon?

DR. ZIRSCHKY. We have not surveyed the states regarding flood control. At this point in time no state has come forward and volunteered to take over flood control projects.

MR. HATFIELD. Have you notified the beneficiaries of the beach replenishment, small port O&M dredging, or the continuing authority programs to tell them of these proposed changes. If not, why haven't you done this? If you have, what have you heard from them?

DR. ZIRSCHKY. While we have not made formal notification to each project sponsor and beneficiary, many of them have learned of the proposed policies. Many of our current and future sponsors have strongly expressed their views of forums both orally and in writing.

MR. HATFIELD. You have spoken of a transition period in some of these changes. Can you please describe in detail how such a transition period will work.

DR. ZIRSCHKY. With regard to local flood and storm damage projects, the policies will be applied to new projects. We will complete whatever phase of the project is currently ongoing. For example, if a project is currently in the preconstruction engineering and design phase, and upon completion, if the test of national significance is not met, the design documents would be completed and then turned over to the sponsor.

With regard to existing projects, the proposal provides that starting FY 98 local flood control projects and harbors that do not contribute to the Harbor Maintenance Trust Fund would be turned over to state or local interests. Negotiations would begin prior to FY 98. A timetable for completion of this effort has not been developed.

GENERAL QUESTIONS

MR. HATFIELD. As someone who was intimately involved in developing the cost sharing formula in the years leading to passage of the landmark 1986 WRDA bill, I do not recall Members of Congress at that time indicating that, if the Corps scope of dredging was to be changed, the Corps had full authority to make this decision on its own, instead of consulting with Congress. Nor do I recall any of my colleagues saying that the receipts from the HMTF were not to be used to dredge smaller ports. What is the recollection of the Corps about these points of those people who were involved at the time?

DR. ZIRSCHKY. Most of the individuals who were involved in the development of the cost sharing formulas that led to WRDA 86 have left the Corps. However, I believe that your recollection is correct.

HARBORS OF REFUGE

Senator HATFIELD. For the record, will you please provide your view of the role of harbors of refuge, a term I hear used from time to time?

General WILLIAMS. A harbor of refuge is a harbor that will offer some level of protection to vessels during inclement weather.

Senator HATFIELD. If the smaller harbors shoal up and are useless because the Federal government abandons its role as provider of dredging services, has the Corps studied what the impact will be on the availability of harbors of refuge?

General WILLIAMS. No, the Corps has not studied what the impact will be on the availability of harbors of refuge if the smaller harbors are not maintained by the federal government.

Senator HATFIELD. Is there increased risk of loss of life if fewer harbors are available for refuge during a heavy storm? Was that calculated by anyone at the Corps or by officials at OMB?

General WILLIAMS. While no study has been performed regarding this question, it would seem likely that increased risk would occur if less harbors are available for refuge. Hopefully, state and other non-federal interests will recognize their responsibility to continue the maintenance of existing harbors.

GENERAL QUESTIONS

MR. HATFIELD. You have stressed the environmental programs of the Corps. At an earlier Senate hearing, I believe one of my Senate colleagues raised with you his point that Corps environmental programs will continue and not face termination or serve cutbacks--am I correct? Are any of your environmental programs facing termination?

DR. ZIRSCHKY. The Presidents's budget does not propose to terminate any existing Corps programs that are considered environmental. Some possible new environmental initiatives were not selected for funding as well.

MR. HATFIELD. Is this because they all are considered "national" in impact, not "local"?

DR. ZIRSCHKY. No. The budget proposal is that the Corps program concentrate on projects and programs where there is a Federal responsibility. The environmental restoration projects that we propose to fund are fundamentally in response to environmental degradation caused at least in part by earlier Federal projects, or where modification of an existing Federal project offers the most cost-effective means of restoring the environment. Thus, there is a Federal

interest. There are a great many environmental activities we do not fund in the civil works program because we have not felt them to be appropriate.

MR. HATFIELD. Is it your view that Corps economic programs often are local, and should be abandoned, but all environmental programs are national in scope and therefore avoid the budget ax?

DR. ZIRSCHKY. Absolutely not.

MR. HATFIELD. Dr. Zirschky, the Corps always has been very professional in its decision-making. You and your predecessors, and the various Chief Engineers over the years, all have been proud of the heritage of the Corps in its analytical processes. Is the methodology the Corps used in adopting these missions changes by curtailing several of its historic missions an example of which the Corps should be proud of your decision-making process?

Is it a high-water mark or a low-water mark in how the Corps decides to implement major policy changes?

DR. ZIRSCHKY. The budget proposals before you did not result from a Corps decision making process, thus, these decisions do not reflect upon the Army's decision-making process. These proposals are the Administration's alternative to an across the board funding reduction in the Corps program. With regard to flood control criteria, the Administration is open to alternatives that would achieve the necessary savings. We have begun a review of the proposed policies and would welcome your input

MR. HATFIELD. Can Congress anticipate more of such sudden changes in the way you decide you want to do business, based on these dramatic shifts?

DR. ZIRSCHKY. Savings must be achieved if the Federal budget is to be balanced. We would prefer to engage in a dialog to explore alternatives for achieving the savings rather than making unilateral proposals through the budget. It is not the Army's intent to make such changes without consultation with Congress.

MR. HATFIELD. Is it appropriate for Congress to limit your flexibility, in response to this sudden change in direction you announced?

DR. ZIRSCHKY. Flexibility is necessary not only to carry out this and other programs, but also for the Administration and Congress to develop new approaches to address the huge budget deficit. Please do not limit our flexibility. We both need it to meet the goals of deficit reduction.

MR. HATFIELD. As a former Senate staffer yourself, how did you expect Members of Congress to react to these sudden changes in direction?

DR. ZIRSCHKY. I expected a negative reaction and would have preferred another course of action.

MR. HATFIELD. Did you warn your colleagues at OMB that among the results of these initiatives might be the loss of flexibility, if Congress reined in on your ability to manage your programs?

DR. ZIRSCHKY. Yes, Sir, I did articulate that point of view to officials in the OMB many times.

MR. HATFIELD. Was consideration given to possible Congressional response to your sudden shift in direction?

DR ZIRSCHKY The possible reactions from Congress were considered by me, I do not know of the considerations by others

IMPLEMENTATION OF DIRECT FUNDING BY BONNEVILLE POWER

Senator HATFIELD. The Committee was closely involved in the development and enactment of Section 2406 of the National Energy Policy Act of 1992. Further, this Committee continues to be very interested in and strongly urges the prompt and full implementation of this direct funding provision of that Act. The Committee understands that the North Pacific Division and the Bonneville Power Administration, as business partners, recently signed the first two implementing Subagreements under the previously signed Memorandum of Agreement between the Bonneville Power Administration and the Corps of Engineers. All of these agreements were made possible by Section 2406 of the National Energy Policy Act. The Committee understands Bonneville has now obligated funds to the Corps to implement these two Subagreements. Have all the necessary administrative actions been taken by the Corps to accept direct funding obligation authority from Bonneville and fully implement these two Subagreements? Please report on the status of these two Subagreements and any implementation steps yet to be taken by the Corps.

General GENEGA. Yes, all necessary administrative actions have been taken by the Corps to accept direct funding obligation authority from Bonneville and fully implement the two signed subagreements (rewind of generator at The Dalles Project and turbine efficiency improvements via changes to hydraulic governors at several Snake & Columbia River projects). These tasks are in the design phase of the overall project plan.

Senator HATFIELD. The reliable operation of Corps hydroelectric projects in the Pacific Northwest is a critical ingredient for the Bonneville Power Administration to make its annual payment to the U.S. Treasury. This was further reinforced during the recent hearing this Committee held on Bonneville's competitive position. Are the Corps hydroelectric projects prepared to support the Bonneville competitiveness effort?

General GENEGA. The Corps of Engineers and specifically the North Pacific Division supports the Bonneville Power Administration's competitiveness effort. We have had joint partnering meetings for several years. Currently our staffs are operating in an open environment in which exchanges of budgetary requirements are becoming the norm and not the anomaly. Thus reliable operation of the Corps hydropower projects, critical to BPA's competitive position in the Pacific Northwest, continues. However, we operate and maintain these multi-purpose hydro-electric projects with the focus of balancing the authorized purposes of power generation, navigation, flood control, natural resources including fish issues within the constraints of budget and in the spirit of the ESA environment while supporting BPA's competitiveness effort. Rehabilitation programs, similar to that currently in place for the Bonneville Lock & Dam Powerhouse, and the rehabilitation report being finalized for The Dalles Lock & Dam Powerhouse, are important factors in maintaining this competitiveness.

Senator HATFIELD. The Committee is aware of the recent rehabilitation report for The Dalles Project submitted to the Headquarters Office. Is there action that this Committee can take to insure expedited action on this item?

General GENEGA. No action is required at this time.

Senator HATFIELD. What is the status of this report and funding for this item?

General GENEGA. The Dalles Major Evaluation Report is currently under review at Headquarters. If approved, the project would meet the criteria for a new start in FY 97.

LIBBY DAM, MT

Senator HATFIELD. What funding is requested in the Fiscal Year 1996 Budget for the Libby Dam?

General GENEVA. \$5,009,000.

Senator HATFIELD. Please provide figures for all the in years and out years in the budget.

General GENEVA. Since 1990, the obligation history for Libby Dam was \$3,976,300 in 1990, \$3,748,200 in 1991, \$4,288,000 in 1992, \$4,582,500 in 1993, \$8,876,300 in 1994 and is expected to be \$5,538,000 in FY 95. The Presidents budget included \$5,009,000 for Libby Dam in FY 96. We are currently developing the FY 97 budget.

Senator HATFIELD. Does the budget include funding to replace generators at Libby Dam?

General GENEVA. Funding to replace generators at Libby Dam is not included in the FY 95 or FY 96 budgets.

Senator HATFIELD. If so, how much funding is requested in all of the in years and out years of the FY 96 Budget?

General GENEVA. No funds have been requested for generator replacement at Libby Dam. We are currently developing our FY 97 budget and it will be budgeted to accommodate the Operation and Maintenance requirements for Libby. This project has 5 units with installation completed and 3 other units partially installed that could be made available to produce hydropower if funding was made available.

PORT OF HOOD RIVER, OREGON

Senator HATFIELD. I understand that the Corps denied the Port of Hood River's request to construct a facility in the Columbia River made of treated wood. The Port was told that it could not use treated wood because of environmental concerns. Is this accurate?

If this is the case, what factual and scientific data did the Corps and other involved Federal agencies use in making this decision?

General GENEVA. Sir, the Portland District Corps of Engineers received two applications from the Port of Hood River in October 1994 (19 and 21 October 1994). One application sought authorization to expand an existing dock and the other was for construction of a dock for cruise vessels and expansion of the Port's existing marina facilities. Both projects involved the use of treated wood piling.

After receiving information to complete the applications, public notices were issued for each project on November 22 and 30, 1994, for a 20-day review period. No objections to the projects were received. National Marine Fisheries Service (NMFS), however, indicated that their no objection was based on the addition of several conditions to the permit including the requirement that all piling be constructed of non-treated wood, steel, concrete, or recycled plastic. Reviewing the projects under their Habitat Conservation Policy, NMFS stated that chemicals from treated wood may be toxic to aquatic life. Of particular concern were salmon species listed as endangered under the Endangered Species Act (ESA).

Both Portland District and NMFS personnel attempted to obtain as much information as possible regarding the affects of the chemicals used to treat wood piling on the aquatic environment; no conclusive evidence was found that impacts would not occur.

Because both projects occur in critical habitat of several Snake River salmon species listed as endangered under the ESA, Portland District determined that the Port of Hood River had two options: 1) pursue the use of treated wood by initiating consultation with NMFS under the ESA [resulting in a delay in issuing the permit from 60 to 135 days], or 2) use non-treated piling as recommended by NMFS. Since the

Port of Hood River was anxious to construct the facilities during the 1994-95 inwater construction window of November 15 to March 15, it chose Option 2. This option would allow the Corps of Engineers to make a "no effect" determination regarding the ESA listed salmon and immediately issue the requested permits.

I will provide for the record a list of scientific studies referenced by NMFS.

(The information follows.)

SCIENTIFIC STUDIES REFERENCED BY NMFS

- Eisler, R. 1989. Pentachlorophenol hazards to fish, wildlife, and invertebrates: a synoptic review. *U.S. Fish Wildl. Serv. Biol. Rep.* 85 (1.17). 72 pp.
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- Malins, D., M. Krahn, M. Myers, L. Rhodes, D. Brown, C. Krone, B. McCain, and S. Chan. 1985. Toxic chemicals in sediments and biota from a creosote-polluted harbor: relationships with hepatic neoplasms and other hepatic lesions in English sole (*Parophrys vetulus*). *Carcinogenesis* 6 (10) : 1463-1469.
- Moore, J. and S. Ramamoorthy. 1984. *Organic chemicals in natural waters - applied monitoring and impact assessment*. Springer-Verlag New York Inc. 289 pp.
- Moore, J. and S. Ramamoorthy. 1984. *Heavy metals in natural waters - applied monitoring and impact assessment*. Springer-Verlag New York Inc. 268 pp.
- Weis, J. S. and P. Weis. 1992. Construction materials in estuaries; reduction in the epibiotic community on chromated copper arsenate (CCA) treated wood. *Mar. Ecol. Prog. Ser.*, 83: 45-53.
- Weis, J. S. and P. Weis. 1992. Transfer of contaminants in CCA-treated lumber to aquatic biota. *J. Exp. Mar. Biol. Ecol.*, 161: 189-199.
- Weis, J. S. Weis, and L.M. Coohill. 1991. Toxicity of estuarine organisms of leachates from chromated copper arsenate treated wood. *Arch. Environ. Contam. Toxicol.* 20: 118-124.

REALIGNMENT OF ALASKA DISTRICT AND PACIFIC OCEAN DIVISION

SENATOR HATFIELD. I am aware of continued discussions within the Corps to realign the Alaska District under the Pacific Ocean Division. Please explain the nature of these discussions

Dr. ZIRSCHKY. Approximately 80% of the Alaska District's program is in support of the United States military forces Pacific Command headquartered in Hawaii. The Civil Works program funds only a small portion of the Alaska District staff. We have considered

transferring the Alaska District to the Pacific Ocean Division, also headquartered in Hawaii, to improve our responsiveness to the Pacific Command. There are, however, also advantages to maintaining the Alaska District under the command of the North Pacific Division. While Corps Headquarters has analyzed the advantages of each option, there is no specific recommendation being considered at this time. Should the Corps develop a specific recommendation, it will be coordinated with Congressional interests prior to final decision.

QUESTIONS SUBMITTED BY SENATOR ROBERT F. BENNETT

CRITERIA TO DETERMINE EMERGENCY SITUATION

Senator BENNETT. What are the criteria used to determine an emergency situation?

General WILLIAMS. Corps guidelines cannot carry over every contingency; therefore, determining an emergency situation requires assessment of the particular situation. However, it must be remembered that Corps assistance in an emergency situation is undertaken to supplement State and local efforts. In a life-threatening situation, all possible aid, short of contracting actions, may be provided by the Army (to include Corps) personnel. In a flood situation, predicted and actual events and the characteristics of local flooding dictate the level of activation used by the Corps.

In the Washington County, Utah situation, the Corps field personnel from the Sacramento and Los Angeles Districts, who were first on the scene, sought appropriate guidance from their district emergency management (EM) personnel. The two EM officers arrived at different conclusions based on the facts and assumptions presented to them. I am pleased to say that, in response to this situation, we have adjusted the inter-district boundaries so that Washington County now lies entirely within the Sacramento District's area of responsibility.

Senator BENNETT. Who has the authority to make decisions in an emergency situation?

General WILLIAMS. Legally, the authority rests with me as the Chief of Engineers, but this authority has been delegated to the Division and District Engineers. The District Engineers further delegate this authority to designated individuals within the district, normally including the Emergency Management chief who is the District subject matter expert on application of Public Law 84-99. The Corps' role in emergency situations is defined and, in certain cases, restricted by the provisions of Public Law 84-99. Decisions in emergency situations must be in accordance with this law's provisions, as well as those of the Federal Acquisition Regulation.

Senator BENNETT. Is the governor of the state empowered to declare an emergency and have the Corps respond, or is there some other procedure that we need to follow?

General WILLIAMS. Assuming we are discussing a flood emergency, the governor cannot order the Corps to respond, since the Corps is a Federal entity, not under state control. However, in a flood event, Corps personnel evaluate a request of the governor, the governor's authorized representative or a responsible authority of a political subdivision, and determine eligible Corps assistance under Public Law 84-99. All Corps emergency activities are coordinated with the State Emergency Management Agency and verbal requests are acted upon. In many cases, the Corps' role is the provision of technical assistance and/or floodfight supplies to permit effective State and local emergency work. Corps emergency management offices maintain open, working relationships with state and county emergency management agencies in order to reduce reaction time during emergency situations.

Senator BENNETT. In the granting of permits, are candidates for the endangered species list treated the same as those already on the endangered species list?

General WILLIAMS. We would consider the impacts on candidate species during our review; however, they do not receive the same consideration as those already on the endangered species list.

QUESTIONS SUBMITTED BY SENATOR CONRAD BURNS

MISSOURI RIVER MASTER WATER CONTROL MANUAL

Senator BURNS. What is the current status of the Missouri River Master Manual negotiations? What level of flexibility do you need to bring the lower basin and

upper basin states together in an equitable solution that benefits all Missouri River users?

General GENEGA. A public comment period was initiated with the September 2, 1994 release of the Draft Environmental Impact Statement (EIS) and was completed on March 1, 1995. Public workshops and hearings have been held at 21 locations in the Missouri River basin, as well as Memphis, Tennessee; Quincy, Illinois; and New Orleans, Louisiana. Over 5,000 people attended these hearings with over 625 providing direct testimony. We also have received nearly 1400 comment letters regarding the Review and Update.

All comments received during the public comment period will be considered prior to final selection of a water control plan. No substantial change in the operation of the main stem reservoir system will be implemented until an approved water control plan is published in a Final EIS and a Record of Decision is signed. We are currently considering recommendations from the Commander of the Missouri River Division of the Corps of Engineers regarding the future study direction. Any potential operational changes will receive a complete Administration review before they are undertaken or proposed for authorization. The earliest any change in the water control plan for the Missouri River Mainstem Reservoir System could take place is in 1997.

We are working to design a collaborative planning process that will bring all interested groups together, including the lower basin and upper basin states, in order to develop an equitable solution for the future operation and use of the Missouri River. I am hopeful that we have the flexibility necessary to proceed with such a process.

PICK SLOAN PROVISIONS

Senator BURNS. One of the great betrayals by the federal government under the Provisions of Pick Sloan and the taming of the Missouri River was the promise that in exchange for flooding tens of thousands of fertile river bottom, the citizens of Montana would receive an extensive irrigation system to replace the lost acreage. That promise was never kept. What in the Corps view is its contribution to the state of Montana for the loss of that fertile bottomland?

General GENEGA. Fort Peck Reservoir was authorized and partially constructed before the Pick Sloan projects were authorized. Concerns dealing with Pick Sloan irrigation should be addressed to the Bureau of Reclamation which was authorized in Pick Sloan to construct reservoirs primarily for irrigation in your state. The Corps of Engineers' contribution to the state of Montana is the reduction of flooding on the Missouri River. The regulated river has allowed revised farming practices on approximately 170 river miles of Missouri River bottom land below Fort Peck Dam. This benefit has been at the additional cost of the net loss of high-bank bottom lands due to continued but lessened erosion, combined with the elimination of high-bank accretion due to the elimination of flooding. In addition, the Fort Peck Lake supports a respectable recreational industry which would not have been possible without Fort Peck Dam. Montanans also benefit from the generation of the project's hydroelectric power.

EROSION DOWNSTREAM FROM FORT PECK

Senator BURNS. The Corps continues to erode valuable agricultural land just downstream from Fort Peck dam with its releases each year. Senator Baucus and I have passed legislation and appropriated money through this subcommittee for mitigation work to prevent the further erosion of this valuable resource, yet the Corps refuses to spend the money saying that there are higher priorities along the river. In my state of 800,000 people, agriculture is our most important industry, and the Corps in this instance is hurting that industry. What has to happen for the Corps to understand that it needs to address this problem?

General GENEGA. The legislative history of Section 33 of the Water Resources Development Act of 1990, Public Law 102-640, exhibits a clear intent to try to solve a difficult problem for the farmers and ranchers that experience the river bank erosion which is occurring along the Missouri River within the geographic area defined in the statute.

Funds appropriated heretofore to alleviate bank erosion are being used to prepare a detailed project report and to rehabilitate two existing erosion control structures, one below Garrison Dam, and the other below Fort Randall Dam. In addition to these activities, in fiscal year 1995 the Corps plans to undertake two demonstration projects involving non-structural solutions to critical streambank erosion problem areas (one in Montana and one in North Dakota). The demonstration projects will

involve plantings and other non-structural solutions to protect critical facilities such as irrigation works.

WATER SYSTEM DELIVERY FROM FORT PECK

Senator BURNS. One of the water system projects is the delivery of water to the community that has grown up around Fort Peck dam and the water needs of the Fort Peck Indian Reservation. I would like the Corps to commit to work with me in exploring what can be done to improve water delivery in that part of my state.

General GENEGA. There are opportunities for water supply storage at the Fort Peck Reservoir under the 1958 Water Supply Control Act and Section 6 of the Flood Control Act of 1944. The Bureau of Reclamation (BOR) is currently preparing a Fort Peck, MT Municipal, Rural & Industrial (MR&I) water supply Technical Report. In support of this effort, the Corps met with BOR and the Fort Peck Tribes March 7, 1995 to provide input regarding feasible water intake sites both in the reservoir and on the river.

QUESTIONS SUBMITTED BY SENATOR ROBERT C. BYRD

PROPOSED FLOOD CONTROL POLICY CHANGES

Senator BYRD. As part of the Administration's efforts to reduce discretionary spending, the fiscal year 1996 budget proposes to shift responsibility for local flood control projects and other programs to the States and local communities, and to focus the Army Corps of Engineers' role on water projects and programs of national significance. Is this proposal still the policy of the Administration, or is it being revisited? What is meant by the statement in your prepared remarks that "The Administration currently is examining alternatives to the proposed flood control criteria * * *?"

Dr. ZIRSCHKY. The announced proposal that the Corps of Engineers flood control program be limited to projects of national significance remains the policy. However, the criteria for determining national significance are being revisited. A variety of alternatives is being examined and we would very much like to consider the views of the Congress in the reanalysis. If you or the Subcommittee have alternatives that should be considered, please provide them to us at your earliest convenience.

IMPACT ON WEST VIRGINIA FLOOD CONTROL PROJECTS

Senator BYRD. As part of the Administration's efforts to reduce discretionary spending, the fiscal year 1996 budget proposes to shift responsibility for local flood control projects and other programs to the States and local communities, and to focus the Army Corps of Engineers role on water projects and programs of national significance. What will be the effect on projects in West Virginia, particularly those components of the Tug Fork project which are not yet completed?

Dr. ZIRSCHKY. The flood control projects in West Virginia that are currently under consideration do not meet the Administration's new criteria for Federal funding. No new detailed studies on the Tug Fork would be initiated. Detailed studies now underway would complete with no further planned Federal action. Projects or elements that are currently under construction will not be affected by the new Administration policy. These projects include the Petersburg and Moorefield local protection projects, as well as the Matewan, Lower Mingo County, Upper Mingo County, and Hatfield Bottom elements of the Tug Fork project. However, only the Matewan element is included in the fiscal year 1996 budget, since it is the only element in this group that was underway prior to 30 April 1986, is not subject to provisions of the Water Resources Development Act of 1986, and, therefore, is supported by the Administration.

Senator BYRD. Which components of the Tug Fork project are subject to the current cost-sharing requirements, and thus would be affected by any change proposed to the cost-sharing requirements of current law?

Dr. ZIRSCHKY. Tug Fork project elements in West Virginia subject to current cost-sharing requirements are Lower Mingo County, Upper Mingo County, Mingo County Tributaries, Wayne County, Wayne County Tributaries, and McDowell County. Two elements, Upper Mingo County and Lower Mingo County, have been funded for construction in fiscal year 1995 or earlier. Thus, these elements would be unaffected by any changes proposed to the current cost sharing requirements. All remaining project elements would be subject to the cost-sharing requirements in effect at the time the elements were funded for construction. The Matewan and Hatfield Bottom elements currently under construction were excluded from cost sharing in previous

Water Resources Development Acts, but will require continuing appropriations to complete.

IMPACT ON STUDY PHASE

Senator BYRD. How might the new policy affect the feasibility of projects currently in the study phase?

Dr. ZIRSCHKY. Under the new policy submitted in February, project feasibility would be based on a benefit-cost ratio of 2 to 1 and require that the majority of flood waters originate outside the state. In addition, project sponsors would need to agree to pay 75 of the project implementation cost and assume all responsibility for operation and maintenance. Only projects meeting these criteria would be recommended for implementation. Therefore, fewer projects would be feasible and fewer still may be financially feasible sponsors to undertake. Currently, the Administration is reviewing the flood control policy to identify alternative criteria that also would achieve the necessary savings.

CHANGE IN COST SHARING REQUIREMENTS

Senator BYRD. At present, what is the Federal/non-Federal cost sharing requirement for flood control projects? How would this change under the proposal presented in the budget?

Dr. ZIRSCHKY. Under present law, the Water Resources Development Act of 1986, local sponsors are required to furnish all required lands, easements, rights of way and relocations, a cash payment of 5 percent of project costs and additional cash payments to bring the sponsor's share of total project costs to 25 percent. The sponsor must provide a minimum of 5 percent in cash payment. In the event of high cost lands, easements and rights of way, the sponsors contribution is capped at 50 percent. Under the proposal presented with the budget the sponsor's share of a nationally significant project would be 75 percent.

Senator BYRD. In general, has it been the experience of the Corps that local communities have little difficulty in attaining the 25 percent cost-share requirements?

Dr. ZIRSCHKY. In general, local sponsors have been able to raise the local share of justified and locally supported projects. Local sponsors have used varying methods to finance the local share, including bond issues and state contributions.

Senator BYRD. Are there changes proposed in the criteria upon which the feasibility of navigation projects are evaluated?

Dr. ZIRSCHKY. No changes are proposed for the evaluation of the feasibility of navigation projects. However, I should point out that the policy proposed by the budget would limit Federal involvement to those harbors that contribute to the Harbor Maintenance Trust Fund.

Senator BYRD. What are the estimated savings as a result of the proposed redirection in policy?

Dr. ZIRSCHKY. The savings estimated for the policies announced with the budget, including those that would take effect after fiscal year 1996, are \$960 million for the five year period, 1996 to 2000.

Senator BYRD. In addition to shifting the funding responsibility, does the policy reconfiguration propose to revise the benefit to cost ratio?

Dr. ZIRSCHKY. The criteria for nationally significant flood control projects announced with the budget would require the project to have a benefit to cost ratio greater than 2.0.

Senator BYRD. Under current law, how many projects would not have been eligible if these new proposed guidelines were in place?

Dr. ZIRSCHKY. Eight projects, one project element, and one program were not eligible under the new proposed guidelines. These are the Holes Creek, West Carrollton, OH, Lower Sacramento Area Levee Reconstruction, CA, Marshall, MN, Mid-Valley Area Levee Reconstruction, CA, Portage, WS, Roughans Point, MA, San Diego River and Mission Bay, CA (Quivera Element), Shoal Creek, TX (Hancock Creek), and Virginia Beach, VA projects and the Aquatic Plant Control Program.

IMPACT ON ON-GOING PROJECTS

Senator BYRD. Will this proposed policy affect projects in process, or just proposed new starts? What will be the effect on projects that have multiple phases?

Dr. ZIRSCHKY. The proposed policy would be applied to new projects. We intend to complete projects that have been funded for construction. For studies and projects that are in an earlier phase, reconnaissance, feasibility, or preconstruction engineering and design, we would complete the current phase and if the project is not nationally significant, the completed work would be furnished to the local sponsor.

Senator BYRD. What is the benefit/cost ratio of the proposed policy—in order words, how do the cost savings compare to the potential economic losses if these flood control projects are not constructed?

Dr. ZIRSCHKY. The proposed policy does not imply that the projects should not be constructed. The policy is that these types of projects provide local benefits, therefore, the local beneficiaries should be responsible to undertake the projects.

Senator BYRD. Does the Administration intend to come forward with a legislative proposal regarding this policy? When will it be submitted?

Dr. ZIRSCHKY. The Administration is currently reviewing the proposed new flood control criteria. We hope to complete this review in the near future, after which we will submit appropriate legislation to the authorizing committees having jurisdiction over the Corps Civil Works Program.

CORPS REORGANIZATION

Senator BYRD. Last year, I was assured by the Administration that the Corps reorganization proposal announced late in 1992 was dead, and that no actions would be taken to implement any reorganization of the Corps field structure without first being reviewed by Congress.

Is this still the case? What is the current thinking of the Administration in regard to any possible reorganization of the Corps that would affect District Offices.

Dr. ZIRSCHKY. Yes, it is still the case. There is no plan at this time to close any Corps of Engineers District Office. The Corps has been able to meet its downsizing objectives through a variety of initiatives including: reduction of Headquarters and Division Office staffing; business process improvements, such as elimination of layers in our policy and technical review processes and a simplification of the Feasibility Study process; empowerment of District offices; consolidations of administrative functions, such as human resources management, finance and accounting and payroll; and increased contracting out. We also plan to initiate a District restructuring effort this summer to look for means to increase the efficiency of District operations. There is an ongoing study to assess the impacts of the forecasted downturns in military programs funding. Alternative proposals to manage the decreasing military workload may be available for comment later this summer. Any final proposals would be coordinated with all Congressional interests prior to final decision.

We would appreciate your opposition to Congressional proposals mandating that we close divisions so that we can have the flexibility to continue the present course.

Senator BYRD. What is your view regarding the use of workload requirements to determine the distribution of resources?

Dr. ZIRSCHKY. The source of funding for all Corps District offices and other field operating activities is project funds. The Corps has no other source of funds for field operations. Project workload requirements are therefore the primary basis for determining the distribution of our workforce resources.

Study Team Milestones

Specific recommendation alternatives:

Brief to COE	23 July (1030 to 1130 Hrs)
Brief to ASA's	3 Aug (1400 to 1500 Hrs)
Notify congressional committees/customers	7 Aug
Comment period for field/visit key customers	9-24 Aug

Final recommendations report:

Brief to COE	18 Sep
Brief to ASA's	21 Sep
Notify/brief congressional committees/customers	2-6 Oct
Implementation plan	1 Nov

HUNTINGTON DISTRICT STAFFING LEVELS

Senator BYRD. What is the staffing level at the Huntington District Office in fiscal year 1995? What is the proposed level for fiscal year 1996?

Dr. ZIRSCHKY. The fiscal year 1995 staffing level for the Huntington District Office is 1,042 FTE. This includes 1,035 FTE for our traditional Civil Works mission and 7 FTE in support of other Federal agencies. We are in the process of developing

our allocations for fiscal year 1996. The draft allocations will be furnished to our field offices for comment in late June and we will provide final allocations in September after review and consideration of all comments. As is our practice, we will withhold some FTE from the September allocation until passage of an Appropriations Act. This last increment will be issued to resource any projects or studies in the Act or accompanying reports that were not included in the District workload estimates, and other changes to the President's Budget

HATFIELD BOTTOM, WV

Senator BYRD. In the fiscal year 1995 Energy and Water appropriations bill, \$500,000 was provided for Hatfield Bottom non-structural work. What is the status of these funds? What work has been accomplished thus far?

General WILLIAMS. Funds appropriated for the Hatfield Bottom element are being utilized to continue floodproofing, initiate property acquisition, and design the ringwall which will be constructed to protect Magnolia Junior/Senior High School.

Senator BYRD. Are there additional construction requirements that can be met in fiscal year 1996 if funds are provided? What is the funding necessary to keep the construction work at Hatfield Bottom on schedule?

General WILLIAMS. The Corps has a capability of \$200,000 in fiscal year 1996 to maintain the Hatfield Bottom construction schedule. Although project and study capabilities reflect the readiness of the work for accomplishment, they are in competition for available funds and manpower Army-wide. In this context, the capability amounts shown consider each project or study by itself without reference to the rest of the program. However, it is emphasized that the total amount proposed for the Army's Civil Works program in the president's budget is the appropriate amount consistent with the Administration's assessment of national priorities for federal investments and the objectives of avoiding large budget deficits and the serious adverse effect that government borrowing is having on the national economy. In addition, the total amount proposed for the Army's Civil Works program in the President's budget is the maximum that can be efficiently and effectively used. Therefore, while we could utilize additional funds on individual projects and studies, offsetting reductions would be required in order to maintain our overall budgetary objectives. Furthermore, the Administration's review of this project has identified economic or policy concerns.

UPPER MINGO COUNTY, WV

Senator BYRD. In addition to the Hatfield Bottom work, funds were included in fiscal year 1995 for Upper Mingo County (\$250,000). These funds were provided to initiate construction on the non-structural floodproofing program. What is the current schedule for this component of the Tug Fork project?

General WILLIAMS. The project report is now under review by my staff and it should be approved later this year by the Assistant Secretary of the Army for Civil Works. Execution of the project cooperation agreement and project initiation could possibly occur prior to 30 September 1995. The element is scheduled for completion in May 2000 assuming adequate funds are appropriated.

Senator BYRD. What funds are necessary in fiscal year 1996 to keep this element on schedule?

General WILLIAMS. The Corps has a capability \$2,000,000 in fiscal year 1996 to keep the Upper Mingo County element on schedule, subject to the same provisions previously noted.

Senator BYRD. Are these funds included in the budget?

General WILLIAMS. No sir, there are no funds included in the fiscal year 1996 budget request for this element.

Senator BYRD. I understand that the local project sponsor has identified the necessary \$1,300,000 in local funding for this element. Are there any other requirements that would be necessary to be fulfilled before proceeding with construction?

General WILLIAMS. Remaining requirements leading to project implementation are as follows: the Assistant Secretary of the Army for Civil Works (ASA(CW)) must approve the project report; the sponsor must complete a viable financing plan for project participation; the ASA(CW) must approve the project cooperation agreement (PCA) and financing plan; and finally, the sponsor and the Army must execute a PCA and Real Estate Memorandum of Agreement for Corps real estate acquisition activities in support of Mingo County.

Senator BYRD. So, if the additional \$2,000,000 were provided in fiscal year 1996, these funds could be spent during the fiscal year?

General WILLIAMS. Yes, sir; an appropriation of \$2,000,000 could be utilized in fiscal year 1996 subject to successful conclusion of the requirements previously noted.

LOWER MINGO COUNTY, WV

Senator BRYD. No funds are included in the budget for the Lower Mingo County nonstructural element. Are sufficient carryover funds available to continue activity on this element in fiscal year 1996?

General WILLIAMS. Yes, sir; carryover funds are sufficient to continue activity on this element in fiscal year 1996.

PETERSBURG, WV

Senator BRYD. Mr. Secretary, I understand that late last week, the Corps indicated that it had underestimated the real estate value of commercial property that is part of the Petersburg flood control project. I am told that the Corps' estimated value may be off by approximately 250 percent. What effect will this estimating error have on the total project cost for Petersburg?

Dr. ZIRSCHKY. The Corps has updated the cost estimate for all project features, including real estate, and has determined that the total project cost has increased from \$24.2 million to \$26.6 million, an increase of \$2.4 million.

Senator BRYD. Will the Corps bear responsibility for covering the cost increase associated with this error, or will the local project sponsors have to share in 25 percent of the error cost?

Dr. ZIRSCHKY. The Government and the sponsor shall cost share the total project cost in accordance with the Project Cooperation Agreement executed in July 1993. The Government is also obligated to provide quarterly financial reports to the project sponsor identifying any increases or decreases in total project costs based on then current data and advise the sponsor of any need to provide additional funds for the project. Currently, the sponsor is not required to provide any additional funds for the project which is now estimated to cost \$26.6 million.

Senator BRYD. What are the terms of the project cooperative agreement—do the local sponsors have any options to increase the value of some of their in-kind contributions?

Dr. ZIRSCHKY. The local sponsor is obligated to contribute, through a combination of cash payments and the provision of project lands, easements, rights-of-way, suitable borrow and dredged or excavated material disposal areas, and relocations, its required share of total project costs. The value of these project features will also be updated as part of the Government prepared quarterly financial reports and they will reflect actual costs resulting from completion of plans and specifications, award of construction contracts, or approval of modifications to construction contracts. In accordance with the PCA terms and conditions, the Government and the sponsor shall agree on the appraised value of the Grandview State Park lands transferred to the National Park Service.

Senator BRYD. What is the current authorization cap for this project?

Dr. ZIRSCHKY. The current project cost limit is \$25.28 million in accordance with section 902 of the Water Resources Development Act of 1986, as amended. The total project cost has been recently updated to \$26.6 million, which exceeds the section 902 limit by \$1.32 million. A Post Authorization Change Report has been prepared and will be processed to Congress to obtain reauthorization of the project at \$26.6 million.

Senator BRYD. Absent the issue regarding this most recent discovery, are the necessary dollars included in the budget to keep the Petersburg flood control project on track?

Dr. ZIRSCHKY. Yes, the necessary funding is included in the budget to keep the project on track.

MORGANTOWN, WV, ENERGY TECHNOLOGY CENTER

Senator BRYD. In an effort to take advantage of expertise available in the Corps of Engineers and the Department of Energy, the Huntington District and the Morgantown Energy Technology Center entered into a Memorandum of Agreement which allows the two organizations to coordinate on projects requiring environmental support. What are the advantages of this partnership? What are the types of expertise each party brings to the arrangement?

General WILLIAMS. One advantage of this partnership is that both organizations can become more efficient by building on each other's strengths. Another advantage is that the Morgantown Energy Technology Center (METC) and the Huntington District are within close proximity to each other, and both have strong working rela-

tionships with West Virginia University, another source of expertise. The Corps engineering and construction expertise is widely recognized. It will utilize this expertise in support of METC's demonstration projects for advanced fossil fuels. Likewise, METC's expertise in hazardous and toxic waste remediation technologies is well recognized and the Corps will draw on that for treatment of contaminated materials on Corps' projects and formerly used defense sites.

Senator BRYD. It is my understanding that this cooperative partnership is aiding in the work at the Winfield Lock and Dam project. In what other ways is this "team" being used?

General WILLIAMS. The METC/Huntington District team is looking at other sites where each other's expertise may be used, such as the West Virginia Ordnance Works near Point Pleasant, WV, and a former TNT manufacturing site at Plum Brook, OH. Formal work efforts will begin once agreements between METC and the Corps are executed.

QUESTIONS SUBMITTED BY SENATOR BARBARA A. MIKULSKI

GENERAL INVESTIGATIONS

Question. Chesapeake and Delaware Canal study, DE&MD—The Corps is requesting \$57,000 to complete the feasibility study. Operation and maintenance report language was provided in the fiscal year 1995 Energy and Water Development Appropriations directing the Corps' attention to the need for navigational safety improvements at Sandy Point, in the Chesapeake and Delaware Canal. Please provide the status of progress of this necessary improvement.

Answer. The ongoing Chesapeake and Delaware Canal study evaluated the Sandy Point area and concluded that navigational safety improvements could be accomplished under existing Operations and Maintenance authority in advance of any features requiring new authorization. Operations and Maintenance funds are being used, within budget constraints, to initiate this work in fiscal year 1995.

Question. The report on this study also identifies navigational safety improvements required at Reedy Point and Arnold Point anchorage relocation. Navigational safety is a paramount concern of the Maryland Pilots and the Port of Baltimore, and I believe the Corps should give a high priority to this work. What is the most rapid means to proceed with these improvements, while continuing towards design requirements for the remaining activities?

Answer. Navigation safety improvements at the Reedy Point entrance flare can be accomplished under existing Operations and Maintenance authority in advance of any features requiring new authorization. Improvements at Reedy Point will be accomplished within budget constraints, in future fiscal years following improvements to the Sandy Point bend. Construction of an anchorage in the Arnold Point area would require new authorization; studies to date concluded that improvements were not economical. Local interests may implement improvements if desired.

CONSTRUCTION, GENERAL

Question. Baltimore Harbor and Channels, Brewerton Extension Channel—The Maryland Port Administration requests that the Corps of Engineers complete construction of this channel improvement in accordance with the 1958 Authorization (Public Law 85-800), and the General Design Memorandum approved in 1986. The uncompleted project is inadequate for safe vessel passage and completion would allow for removal of costly navigational restrictions which limit traffic movements through the approach channels to the Chesapeake and Delaware Canal. The Port is willing and ready to cost share in the completion of this project in accordance with current cost sharing provisions. If funds are provided, how soon could the Corps initiate this work?

Answer. Using funds reinstated within Corps' reprogramming authority, the Corps has initiated analysis of navigation safety and economic and environmental issues associated with widening the channel. The Baltimore District could use \$339,000 in funds in fiscal year 1996 to complete the engineering and design of the extension channel by September 1996. That would allow the corps to consider budgeting funds for resumption of construction in fiscal year 1999, provided the Port Administration is able to enter into a Project Cooperation Agreement for construction in accordance with the requirements of Section 101 of WRDA 86.

Question. Poplar Island, Maryland Restoration Project. We, in Maryland and everywhere in the Chesapeake Bay, very much appreciate the fine work the Corps has done for the Bay, particularly in the development of the Poplar Island Restoration project, which has received Special Achievement recognition from the Chesapeake

Bay Program Office. We thank you and your staff for your support in fast-tracking this vital project. Initial funding has been provided through the Section 204 program for Wetland and Aquatic Habitat Creation. I understand that \$12,000,000 is required for fiscal year 1996 for the dike construction for this project. Will these funds be made available under the Section 204 program for this work?

Answer. The Poplar Island Restoration project is being studied for implementation using Section 204 of the Water Resources Development Act of 1992 as the authority. Under this authority, the base disposal plan must be identified and then the Federal share of the incremental cost of the restoration plan is funded from the Section 204 program funds. The incremental amount has not yet been defined but may be between \$30 million and \$100 million, with about \$9 million in Federal funds required in fiscal year 1996. The estimated scope of this proposed project would strain the capabilities of the Section 204 program. Current projections indicate that the funding requirements for fiscal year 1997 and beyond would exceed the annual program appropriations limit. Although the Administration has requested the annual program appropriation limit, \$15 million for fiscal year 1996, this is for the entire program. We are currently unable to state that funds will be available for this project if it is approved for implementation under the Section 204 authority.

Question. Hart and Miller Island South Cell, Maryland. The Corps has initiated design of this project which is to be continued under the Section 1135 program for Project Modifications for the Improvement of the environment. When will the plan developed by the Waterways Experiment Station for this project be approved and when could this work begin?

Answer. The work performed by the Waterways Experiment Station was completed under Section 22 of WRDA 74 which allows the Corps to provide planning assistance to the states. The Baltimore District is considering the applicability of the Section 1135 authority to implement restoration beyond what was envisioned when Hart and Miller Island South Cell was authorized. The District is currently coordinating with State interests prior to seeking funding for the Section 1135 study. If funded, the study will build on the work done by WES, develop project designs and complete environmental compliance activities. The preparation of the final design and coordination with the resource agencies and the public will likely take six to nine months following receipt of funds. Construction could begin in fiscal year 1996.

OPERATION AND MAINTENANCE, GENERAL

Question. Baltimore Harbor and Channels, Maryland and Virginia, Chesapeake and Delaware Canal Approaches: Modification to Tolchester Channel "S-Turn."—Modification of the Tolchester Channel to correct the safety problem posed by the difficult "S turn" is necessary for the safe transiting of this channel. The Maryland Pilots have participated in ship simulation studies which confirm the navigational difficulties posed by the existing alignment which can be improved to safely handle the larger vessels which currently transit this channel with much trepidation. I understand that the Corps will complete a report that addresses the economic, environmental and safety concerns of this modification. Funds required for completion of design of this channel realignment should be given high priority in fiscal year 1996, and the Corps should include in the fiscal year 1997 budget request, funds for construction of this necessary safety improvement. Please provide the status and schedule for this work.

Answer. Straightening of the Tolchester Channel "S-Turn" is considered new work dredging and can not be accomplished under the Operation and Maintenance, General program. Straightening of the "S-Turn" is being addressed by the Philadelphia District in the cost-shared Chesapeake and Delaware Canal Deepening Feasibility study which is scheduled for completion in September 1996. Additionally, ship simulation studies were initiated in December 1994 to assess navigation safety. The Association of Maryland Pilots have not participated in the actual simulation studies yet, but did participate in one of the earlier phases of the studies which tracked ships transiting the channel using a differential global positioning system. The data from this portion of the study is being analyzed and the ship simulation exercises are scheduled to commence in the Fall of 1995. Study results would not be available until Spring 1996 and this would not allow the Corps to consider budgeting for construction funds for this project in fiscal year 1997.

Question. Intercoastal Waterway, Delaware River to Chesapeake Bay, Delaware and Maryland—Shoreline Stabilization at Sandy Point. Are additional funds required to proceed with shoreline erosion at this location?

Answer. No additional funding is required for the Sandy Point erosion problem at this time. Advance maintenance dredging of the width of the canal at Sandy

Question. Intercoastal Waterway, Delaware River to Chesapeake Bay, Delaware and Maryland—Shoreline Stabilization at Sandy Point. Are additional funds required to proceed with shoreline erosion at this location?

Answer. No additional funding is required for the Sandy Point erosion problem at this time. Advance maintenance dredging of the width of the canal at Sandy Point is planned for Summer 1995. Evaluation of the erosion or lack thereof will then take place during fiscal year 1996 to determine if stabilization is necessary to alleviate any navigational safety problem.

Question. Upper Chesapeake Bay Dredged Material Management. The requirements for adequate disposal capacity, particularly in the Upper Bay, is of concern as maintenance of the navigational channels affects the operations of the Port of Baltimore. Although the Corps of Engineers is working with the Port in implementation of suitable sites on a timely basis, there is a pressing need to pursue all options, including open water sites, as well as beneficial uses of dredged material and habitat restoration projects in response to the August 1994 Federal Agencies Agreement on Ecosystem Management in the Chesapeake Bay. The current effort to use dredged material to stabilize the eroding shoreline at Aberdeen Proving Ground would reduce the risk of erosion of contaminants that could cause severe degradation of the Upper Bay. I request that the Corps report on its plan and progress towards implementation of suitable sites to assure the continued maintenance of these important navigational channels, and advise whether current funding levels are adequate to maintain navigation needs.

Answer. The State of Maryland is responsible for providing suitable dredged material placement areas for the Baltimore Harbor and Channels project. The Corps' Baltimore and Philadelphia Districts are working closely with the State on its Dredging Needs and Placement Options Program to identify short term, 0 to 5 years, dredged material placement areas, and the Corps is developing a Dredged Material Management Plan to identify long term, five to twenty years, dredged material placement areas, which are environmentally acceptable, technically feasible, and economical. These alternatives include beneficial uses such as island, wetland, and oyster bar creation, habitat development, and beach nourishment, as well as open water and confined dredged material placement areas. The primary focus of the Baltimore District's placement options include the State's CSX/Cox Creek confined placement facility which will handle contaminated material from Baltimore Harbor and the Poplar Island Restoration project which will handle clean dredged material for the next 12 to 15 years. The Corps is also working with the State of Maryland, Federal and State environmental agencies, and Aberdeen Proving Ground to see if dredged material can be used in the Installation Restoration Program to remediate CERCLA sites at the Proving Ground. Due to chemical contamination, unexploded ordnance, CERCLA liability issues, large areas of sensitive wetland and shallow water habitat, and areas still being used as firing ranges, it has been difficult to locate suitable dredged material placement areas. The Corps will continue to work with the State to assure that suitable dredged material placement areas are available to maintain the navigation channels. Current funding levels are adequate to maintain navigation needs.

QUESTIONS SUBMITTED BY SENATOR JAMES M. INHOFE

MCCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM LOCKS AND DAMS, ARKANSAS AND OKLAHOMA MONTGOMERY POINT LOCK AND DAM

Question. Last year Congress directed you to begin construction of the Montgomery Point Lock and Dam using available funds. I understand that planned obligations and expenditures of the general construction funds are behind schedule. When will you advertise the Montgomery Point access and service facilities and do you anticipate awarding a contract this fiscal year?

Answer. Given the current schedule, we expect to carry over approximately \$2 million for Montgomery Point Lock and Dam into fiscal year 1996. The Senate Report accompanying the 1995 Appropriations Act directs that funds not fully obligated during fiscal year 1995 be available for construction as may be recommended by the Assistant Secretary of the Army for Civil Works. While I expect to use this carryover for continued engineering and design and land acquisition for Montgomery Point, I cannot recommend that we start construction in fiscal year 1995 or 1996 without the permission to finance 50 percent of the cost from the Inland Waterway Trust Fund.

Answer. The enactment of the 1978 Inland Waterways Trust Fund and the 1986 Water Resources Development Act directed that amounts in the Inland Waterway Trust Fund shall be available, as provided by appropriation acts, to construct and rehabilitate inland waterway navigation projects described in Section 206 of the Inland Waterways Revenue Act of 1978. The McCellan-Kerr Navigation System is one of the waterways described in Section 206. At this time, we lack that permission to finance 50 percent of the cost from the Inland Waterway Trust Fund that can be provided in appropriation acts. This is fully consistent with our policies for new construction on any part of the taxable inland waterway system as envisioned in the 1986 Water Resources Development Act.

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

STATEMENT OF DANIEL P. BEARD, COMMISSIONER

ACCOMPANIED BY RONALD JOHNSTON, PROGRAM DIRECTOR,
CENTRAL UTAH PROJECT

SUMMARY STATEMENT

Senator DOMENICI. OK. Let's proceed, please.

Commissioner, do you want to proceed with your statement? I have it. It will be made a part of the record. Proceed to either give it or summarize it, whichever you feel most comfortable with.

Mr. BEARD. In the interest of time, Mr. Chairman, I think I would just like to make a few brief remarks.

I think the important thing to note about this budget is that it is \$45 million less than last year's. In addition to that, reclamation today is a smaller organization than it was just 2 years ago.

We have reduced the size of our organization by 20 percent in terms of the personnel. That represents a reduction of 1,500 positions. We have also signed agreements from an additional 700 employees who will be leaving over the next 1½ years.

We also expect that the \$45 million reduction in this year's budget will continue in the out-years as well. But we have been able not only to make that shift in terms of a smaller organization and one that runs at less costs, we also have been able to include in this budget some new initiatives in five areas. And I would just really like to mention those.

The first is to try to create new sources of water by funding wastewater reclamation, reuse projects, and water conservation efforts. We are going to be doing that.

We have also tried to include some new approaches to old problems. This includes changes in the small loan program and the Colorado River Basin Salinity Control Program, which is legislation introduced by Senator Bennett, which just passed last week.

We also have included new partnership approaches, ways in which we can pool our resources with those of other agencies and get a much more effective response for the taxpayers. This includes our work with the Bonneville Power Administration and the National Fish and Wildlife Foundation.

We have also included some funds to essentially avoid train wrecks. We have some areas where we have significant potential problems, and in the area of endangered species, we have initiatives underway in the Colorado, the Columbia, and the Snake Rivers to avoid those, as well as in California.

Finally, we have larger budget increases in here to protect public health and safety. And this is a very large increase for the Dam

Safety Program and also to protect workers and to rehabilitate our structures for the handicapped.

So those represent essentially the new thrust, the new directions in this budget. Obviously, I could not conclude without saying thank you to Senator Bennett for his kind words earlier. In this business, they do not come along very often, and I appreciate it. Thank you.

PREPARED STATEMENT

I want to defer to Mr. Johnston, who is the coordinator in the Department of the Interior for the central Utah project, who may also have a statement as well.

[The statement follows:]

PREPARED STATEMENT OF HON. DANIEL P. BEARD

Mr. Chairman and Members of the Subcommittee, my name is Daniel P. Beard, and I am the Commissioner of Reclamation. I appreciate the opportunity to appear before the Subcommittee this morning to discuss the Bureau of Reclamation's fiscal year 1996 budget request.

The Bureau of Reclamation was established in 1902 to develop and manage water and related resources in the Western United States. Today, Reclamation delivers 30 million acre-feet of irrigation and municipal and industrial water to more than 28 million people, and is the largest wholesaler of water in the United States. Reclamation also operates 52 powerplants generating 48.0 billion kilowatt hours of electrical energy, making it the sixth largest electric power producer in the West.

Although traditionally viewed as a civil works agency, the development stage of Reclamation's mission is nearing completion. Reclamation's focus as an agency is shifting to enhanced water resources management.

Reclamation today is a leaner, more efficient organization than it was just two years ago. We have reduced our work force from 8,100 to 6,600 in less than two years and have signed buyout agreements with 700 more workers. We have adopted a new organizational structure designed to empower front-line employees.

This transformation from a civil works agency into a water resources management agency is still in progress. Yet this change is absolutely necessary in order to respond to the challenges of supplying water to an increasing population while meeting more diverse water needs. Reclamation programs have evolved from emphasizing delivery of irrigation water to include a broad range of other uses, including urban needs, Indian self-sufficiency, fish and wildlife protection, endangered species recovery, environmental restoration, and recreation.

As you know, the President's fiscal year 1996 budget request for our agency is \$804 million. At the same time, as part of the President's Reinventing Government Initiative, all Federal agencies are reexamining their mission. This includes addressing the mission based on "customer" input; asking whether the mission could be accomplished as well or better without Federal involvement; looking for ways to cut costs or improve performance through competition; and ways to put customers first, cut red tape, and empower employees. We are actively participating in this effort and will be keeping the Subcommittee fully apprised of our review.

Reclamation's fiscal year 1996 budget request reflects the transition that has already begun in our mission. The total budget is \$804 million, or \$45 million below the comparable figure for fiscal year 1995. The request for net current budget authority is \$747 million, compared to \$792 million enacted by Congress for fiscal year 1995.

This budget request is the result of months of deliberation, difficult decisions, and the administrative streamlining necessary in this time of fiscal constraint. Reclamation is placing more emphasis on enhancing and protecting the environment and stretching water resources through water reclamation, reuse, voluntary water transfers, and conservation. Even though the Bureau has moved away from construction of large projects, some construction work remains in order to complete ongoing projects and begin repayment to the Treasury by project beneficiaries.

Reclamation is streamlining its operations and using partnerships to achieve this fundamental change to a water resources management agency. Reclamation is transforming itself from a slow moving construction agency requiring a large Federal budget into an efficient, low-cost problem solver.

STREAMLINING

Reclamation has spent the past 18 months working hard to empower its employees, eliminate unnecessary practices, and make Reclamation an exciting place to work. For example, Reclamation has:

- Obtained shorter delivery time for services by reengineering operations. For example, we have reduced the evaluation time for dam safety checks from five to two years.
- Approved “buyout” requests from several hundred employees who will leave over the next two years.
- Restructured 35 project offices into 26 Area Offices. We have also downsized the regional offices and abolished the Denver headquarters concept.
- Eliminated at least two layers of management and implemented a three-fold customer service strategy.
- Abolished seven of the highest positions in the organization, replacing those positions with three positions reporting directly to the Commissioner.

PARTNERSHIPS

Reclamation has formed new partnerships and enhanced existing partnership arrangements in order to carry out its mission more effectively, and at a lower cost to the taxpayers. Examples of these partnerships include:

- Working together with customers to assist in implementing water efficiency improvements; expanding the customer base to include non-irrigation customers such as rural and urban water users, Native Americans, environmentalists, and recreationists; implementing management reforms to reduce the unit cost for the customer and lessen the burden on taxpayers; and establishing customer service standards to ensure customer satisfaction.
- Working with other Federal, State, and local agencies and Indian Tribes to restore and protect native and endangered species and their habitat on the Columbia and Snake Rivers in the Pacific Northwest; the Colorado River basin; the Platte River basin; and the rivers of California’s coast and its Central Valley.
- Forming partnerships with districts or groups of districts serving agricultural and/or municipal and industrial customers.
- Considering Reclamation employees as full partners in the success of the organization. Employees suggested the changes that led to the reinvention of Reclamation. Employees have also prepared a draft alternative budget structure to portray more effectively the programs of Reclamation.
- Developing performance measures consistent with the Government Performance and Results Act of 1993.
- Implementing the Indian Self-Governance program by identifying projects/programs to be operated by Indian Tribes.
- Leveraging Federal dollars by joining with the National Fish and Wildlife Foundation, Trout Unlimited, America Outdoors, Bass Angler Sportsman Society, and other private and public organizations to conserve scarce natural resources.
- Participating in the Corporation for National and Community Service program, known as AmeriCorps, to provide environmental resources training and education.

These streamlining efforts and partnership agreements have allowed Reclamation employees to alter the way we do business, and the way we interact with all of our customers. Through aggressively pursuing these kinds of changes, Reclamation will be able to continue its leadership role in water management at less cost to both the taxpayers and to water users who contract with us.

Now, I would like to focus on certain aspects of Reclamation’s fiscal year 1996 budget request.

OPERATION AND MAINTENANCE

Protection of the infrastructure, the conservation of natural resources, the delivery of water and power benefits, and the collections of revenues remain our highest priorities. The \$288.8 million request funds the operation of 36 projects and the administration of 13 associated programs. In fiscal year 1996, several new facilities will be added to the O&M program.

With respect to the operation and maintenance of the Yuma Desalting Plant in Arizona, water storage in the Colorado River is adequate to meet Mexico treaty requirements for salinity levels for the next several years without operating the plant. Reclamation is taking advantage of this opportunity to review the future of the

Yuma Desalting Plant. However, funds of \$6.3 million are required to maintain the plant in ready reserve status.

Customers of the Bonneville Power Administration will continue to fund, with \$19.6 million, major replacements at powerplants on the Boise, Columbia Basin, Hungry Horse, and Minidoka Projects.

Recent storms in California have caused some damage on several Reclamation projects. The work includes repair of facilities and clearing landslide damage. The extent of the damage is being evaluated. Funding will have to be diverted from other Reclamation programs to cover this work.

CONSTRUCTION PROGRAM

The \$375.9 million request provides for increased emphasis on resources management and protection, and future project development will be oriented toward non-structural and non-traditional projects serving diverse customers.

The budget we submitted to Congress requests funding of \$23 million to continue work on four water reclamation and reuse projects authorized in Public Law 102-575, the Reclamation Projects Authorization and Adjustment Act of 1992. These are the San Gabriel Basin, Los Angeles Area, San Diego Area, and San Jose Projects. Protection and recovery of endangered and native fish species in the Columbia, Snake, and Colorado Rivers will require \$23.7 million. Projects in support of Indian self-determination efforts include the Mni Wiconi and Umatilla Projects and several other projects with essential Indian components.

The request includes \$122 million, or 32 percent, for the Central Arizona Project (CAP), of which \$29 million is for safety of dams work. Notice of completion was issued to the Central Arizona Water Conservation District (CAWCD), placing Phase 1 of the project into repayment effective October 1, 1993.

Negotiations are underway between the Department and CAWCD on the interpretation of the existing contractual repayment ceiling and on options to cover remaining reimbursable costs. Resolution of these issues is anticipated by June 1995. Of the total amount of \$93 million for construction of the CAP, about \$25 million is for construction contracts which could be delayed if ongoing negotiations on master repayment contract issues are not concluded in a manner acceptable to the Secretary.

Reclamation's budget request assumed a substantial contribution from the State of California for the Shasta Temperature Control Device (TCD). Installation of the TCD will permit more power generation at Shasta Dam while improving operational flexibility in order to meet temperature requirements for fisheries downstream in the Sacramento River.

The 1992 Central Valley Project Improvement Act, known as the CVPIA, requires that the Department secure a State contribution of 25 percent of the cost of the TCD. The State's share is estimated to be \$20 million. The State committed to meeting its obligation by signing the "Central Valley Project Improvement Act, Sharing of Costs Agreement for Mitigation Projects and Improvement," dated June 27, 1994.

Reclamation has awarded a contract for the construction of the TCD and is moving ahead on an aggressive schedule. Reclamation has been unable to secure assurance of a State contribution for fiscal year 1996. To cover the \$20 million shortfall from the State, funds will have to be diverted from other activities within Reclamation. A formal budget amendment is being prepared to accomplish this. Some of the programs presented in the budget and discussed in my testimony today may be affected.

LOAN PROGRAM

Included in the \$16.7 million request is \$5.2 million for two ongoing loans. One is for the Shuk Toak District of the Tohono O'odham Nation for development of an on-farm irrigation system. The other is for the Eastern Municipal Water District No. 3 for water reclamation for irrigation and wetlands. The budget request also includes \$6 million to continue five loans initiated in 1995 and to fund one new loan.

GENERAL INVESTIGATIONS

Funding of \$13.6 million is requested for 35 ongoing studies and 14 new planning studies. The program promotes strategies to meet future water quality/quantity needs through nonstructural or minor structural solutions. Seven of the new studies concentrate on effective management of water, and at least 20 studies in the program are committed to the preservation or enhancement of fish and wildlife and/or endangered species.

GENERAL ADMINISTRATIVE EXPENSES

The \$50.3 million request is \$3.7 million lower than the amount enacted in fiscal year 1995. This request supports overall program and personnel policy management; equal employment opportunity; safety and health management; budgetary policy formulation; information resources management; procurement, property, and general services policy; public affairs; and organizational and management analysis. Aggressive streamlining efforts continue in these areas.

CENTRAL VALLEY PROJECT RESTORATION FUND

The \$43.6 million program will fund habitat restoration, improvement, and acquisition, as well as specific actions outlined in Section 3406 of the CVPIA. Fiscal year 1996 also provides for comprehensive and coordinated actions to protect the San Francisco Bay and Delta, while bringing long-term benefits to California's environment and economy. The program is financed by revenues from water and power users, including \$37.5 million in additional mitigation and restoration payments, the maximum available under the authority in Section 3407(d) of the CVPIA.

A program to acquire additional water supplies to supplement the quantity of water dedicated to fish and wildlife will be continued, requiring \$14 million. The CVPIA program of acquiring lands and associated water rights in order to establish wildlife habitat, reduce irrigation drainage problems, or provide additional water supplies to Central Valley refuges and habitat areas will require \$6.1 million.

Reclamation also plans to use \$11.3 million from the CVP Restoration Fund to finance continuation of the Shasta TCD.

Mr. Chairman and Members of the Subcommittee, this concludes my prepared remarks. I would be happy to respond to any questions Members may have concerning the Reclamation program and our fiscal year 1996 budget request.

STATEMENT OF RONALD JOHNSTON

Senator DOMENICI. Do you have a statement, Mr. Johnston?

Mr. JOHNSTON. Yes, Mr. Chairman. I would like to enter it into the record.

Senator DOMENICI. That will be done.

CENTRAL UTAH PROJECT

Mr. JOHNSTON. I just simply would like to say that the 1996 budget request for central Utah project completion activities is \$44 million, which is \$4 million more than the previous fiscal year.

PREPARED STATEMENT

It will initiate construction on the Diamond Fork Pipeline and continue the planning activities for the central Utah project. It will also continue funding for the newly created Mitigation Commission. And I think that is all the summary I have, Senator.

Thank you.

[The statement follows:]

PREPARED STATEMENT OF RONALD JOHNSTON

My name is Ronald Johnston, and I am the Program Director of the CUP Completion Act Office. I am pleased to provide the following information about the President's fiscal year 1996 budget for implementation of the Central Utah Project Completion Act.

The Central Utah Project Completion Act, Titles II-VI of Public Law 102-575, provides for completion of the Central Utah Project (CUP) by the Central Utah Water Conservancy District. The Act also authorizes funding for fish, wildlife, and recreation mitigation and conservation; establishes the Utah Reclamation Mitigation and Conservation Commission to coordinate mitigation and conservation activities; and provides for the Ute Indian Water Rights Settlement.

The Act provides that the Secretary may not delegate his responsibilities under the Act to the Bureau of Reclamation. As a result, the Department has established a program coordination office in Provo, Utah, which I direct, to provide oversight,

review and liaison with the District, the Commission, and the Ute Indian Tribe, and to assist in administering the responsibilities of the Secretary under the Act.

The fiscal year 1996 request for the Central Utah Project Completion Account provides \$44.1 million for use by the District, the Commission and the Department to implement Titles II-IV of the Act, an increase of \$4.0 million over fiscal year 1995. The request includes \$18.9 million for the District to continue construction of the Diamond Fork System; complete planning studies on the Spanish Fork Canyon/Nephi Irrigation System and on replacement facilities on the Uintah and Upalco Units; and initiate implementation of water conservation projects and groundwater recharge and conjunctive use programs.

The request also provides \$18.5 million for use by the Commission for mitigation and conservation projects authorized in Title III of the Act, and for completing other mitigation measures identified in Reclamation planning documents. Finally, the request includes funds for the Federal contribution to the principal of the Utah Reclamation Mitigation and Conservation Account (\$5.0 million); for mitigation and conservation projects outside the State of Utah (\$0.5 million); and for program administration (\$1.2 million).

In addition to the request described above, the Bureau of Reclamation's budget includes \$13.6 million to complete certain features of the CUP; \$25.0 million is included in the Bureau of Indian Affairs budget for the Ute Indian Rights Settlement; and \$5.3 million is included in the request for the Western Area Power Administration for its contribution to the Utah Reclamation Mitigation and Conservation Account.

WATER SUPPLY CONTRACT RENEWALS

Senator DOMENICI. Senator Kerrey, do you have any questions?

Senator KERREY. I have a couple that I can do quickly. I did not hear Senator Bennett's complimentary remarks, but I would add to them.

Mr. Beard came out to Nebraska to help us with a very contentious issue having to do with both the extension and the possible buyout of irrigation contracts.

The presumption was that into the room was going to walk a man with horns, and the presumption was that this was going to be a completely unproductive and typical meeting with a Government official. And the presumption turned out to be incorrect.

I was very impressed with your willingness to make decisions immediately and to make judgments immediately. And I can tell you that though there are, I am sure, lots of potential disagreements down the road.

The audience that was there, a group of farmers and irrigators, came away saying this is one Government official that is doing his job, and we are getting our money's worth, and we had an opportunity to air our grievance.

And I am very grateful that you performed in that fashion. I do not know how it is that you acquired the skills that you have of management, being a Ph.D. and a former Hill staffer, but I am glad that you have them.

It makes me feel—I must say to you it just makes me feel an awful lot better about what all of us are trying to do, and I am glad and grateful for what you did.

Can you tell me from your perspective how that contract renewal process is progressing?

Mr. BEARD. Well, first of all, I would like to say thank you for the compliment and also thank you for your letter which you sent to me just last week.

I would say that we have gotten the worst problem out of the way, which is the question of funding on behalf of these districts.

We were able to reduce the financial burden on them significantly down to a level that I think is fair. I think the process is underway.

As a result of that meeting, I have been back and had a discussion, several discussions, with our lawyers about how we might approach this problem. And I have asked them to get back to me within the next 3 weeks. I am trying to get something back to you by June 1.

I want to be responsive, so that if we do see the need for some legislation to resolve the problems, as we talked about at that meeting, we can get back to you early to be able to resolve it.

I still think we can resolve this problem without legislation and provide everybody with the thing that they want most, which is some assurance as to what the future is going to hold for them.

So I set a date in my own mind of getting back to you by June 1 with some kind of a response on how we are going to do that. It is either going to be legislatively, or we are going to do it administratively.

SAFETY OF DAMS ISSUE

Senator KERREY. Well, one additional question that I have has to do with this dam safety issue. I do not know if you are familiar with the Lake Alice situation, but the question is whether or not the Bureau feels like it should be responsible when responsibility for producing the design and the cost of producing that is really the issue.

Does the Bureau feel that it should bear the cost for repairing the dam safety design?

Mr. BEARD. This issue was raised to me last week for the first time. I must tell you I certainly have some sympathy for the districts involved.

You know, the Bureau of Reclamation came along and said, "We are going to solve this problem" and essentially went forward and spent money to solve the problem. But, in fact, they did not solve the problem.

We now come along 10 years later, and was the problem solved? The answer is no, it does not look like it was. But what has happened in the interim is that Congress has passed legislation imposing cost-sharing requirements on local entities for dam safety fixes.

Now, the question is: Are we fixing up the same old problem, or is this just a new problem that has arrived? And I think it is a judgment call.

When this issue was raised to me, I asked to get all of the background materials and all the information provided to me so I could make an intelligent, reasoned decision on it. I intend to make it rather quickly, because there is no use stringing people out here. You know, it is either one or the other.

And frankly, we have encountered this problem in other places. Solving dam safety problems is not easy sometimes. It is sometimes hard to find out exactly what the problem is and how to correct it. And it does take time.

So I intend to get back to you with a response, but this issue was raised to me and I am aware of the nature of the problem.

Senator KERREY. It is inside of the fifth area that you have identified as a priority area for the Bureau?

Mr. BEARD. Sure. Yes; I mean, dam safety is a very high priority for us. We have either got to make these investments and get this reservoir straightened out, or it will operate in the long run under reduced conditions. And water supply is a problem in that region. Those reservoirs have been experiencing insufficient inflow.

Senator DOMENICI. Senator, did you have any questions?

Senator BURNS. I have a couple.

Senator DOMENICI. Go ahead.

Senator BURNS. Well, I have not even had a chance to think here.

Senator DOMENICI. Well, I will go, if you want.

Senator BURNS. Go ahead.

Senator DOMENICI. First, I have a series of questions that staff has prepared that will permit us to work with you as we try to put the final appropriation together.

But I would like to just ask you, since you received such accolades for understanding your role and doing it so well——

Mr. BEARD. I knew something else was coming. [Laughter.]

BUREAU OF RECLAMATION'S FUTURE

Senator DOMENICI. It seems to me that you had better, in your way, defend the need for the Bureau of Reclamation here on the record. Could you do that?

Mr. BEARD. Sure. I feel very confident about our future. To be perfectly honest, there will always be a need for the Federal Government to act as either a referee or a punching bag for the resolution of western water problems.

We have a situation in the West, as all of you are familiar with, where the individual States have differences, very strong differences.

And we have a need for Federal funding to assist Western States and communities to resolve their water problems. If left to their own devices, frankly, they could not come up with the funds that are needed to do that.

So there is a need for Federal involvement and assistance in helping Western States and communities to solve their problems. Does it have to be the Bureau of Reclamation? Probably not. It could be something else. But clearly, there is a need for Federal involvement.

We also have unique statutory responsibilities in some areas around the country, such as the lower Colorado River, where the Congress has essentially federalized the river. And we act as the water master under the authority of the Secretary.

So I am very confident about the future of the Bureau of Reclamation. I think we have an important role to play in almost all the Western States. I think the role is going to be different in the future.

We are going to defer to local entities to a greater extent than we have in the past. But that is just the nature of the changing times.

Senator DOMENICI. Are you still in the development business?

DEVELOPMENT PHASE ENDING

Mr. BEARD. We still have projects that we are constructing, but I think it is fair to say that the development phase is coming to an end, and we are moving more into a mode of operating and maintaining the facilities that we have put in place over the last 90 years.

Senator DOMENICI. So when you say that there are water problems that the States have and political subdivisions thereof and user groups therein, I suppose they need your help. How do you help them?

Mr. BEARD. Well, I think just the case in your own State where we operate and maintain reservoirs and facilities up and down the Rio Grande.

We are an integral part of that river, as is the Corps of Engineers and the States and the local entities involved. And it would be pretty hard to extract us or the Corps of Engineers out of that system.

It is the same in the Colorado, the Columbia, the Missouri and all the other river basins in the West, where we are an integral part of the mosaic of interests and organizations that are involved in those river systems.

And it is going to be very difficult to sort of extricate the Federal Government from them.

Senator DOMENICI. Sure. I did not ask the question, Commissioner, because I am in favor of doing away with you.

I mean, it is obvious to me that what has happened in the last 3 years, the Bureau of Reclamation is not what it was, and it looks to me like it is going to be less than it is today in a few years.

Many States in the West count on the Bureau to a very significant degree for the areas it has been in heretofore, certainly my State does.

But I sense sort of an interest somewhere—I do not know where it comes from—that you are just too much a part of the water development, and maybe we should squeeze you down to size where you maybe will not even be a player. Do I, in any way, read that sentiment within this administration to do that?

Mr. BEARD. No; I do not think that is it—I think it is more a reflection of reality. Let's be honest. The Bureau of Reclamation today is the largest wholesale water supply utility in the Western States, and we are the sixth largest electric power generator in the West. We are a sizable electric, water, and power utility. We are a wholesaler.

We provide a significant amount of technical assistance, and we have research capability. And we will continue to play those roles. But our role will be a different role. It is not going to be the role that it was in the past, and it will change with time.

Senator DOMENICI. Well, right off the bat with reference to all that power generation, there is a move abreast to privatize a lot of that, is there not?

Mr. BEARD. Yes; there are administration proposals to divest the Western Area Power Administration and Southeastern and Southwestern Power Administrations. Yes.

Senator DOMENICI. I will submit the questions with reference to various aspects of your current activities. Can you answer them as quickly as possible?

ACREAGE AND CONSERVATION GUIDELINES

Can I ask you about the Bureau's recently issued proposed acreage and conservation guidelines? Many of the conservation districts in my State have expressed concerns both about the particulars of the guidelines and about general policies which underlie them. I focus on two areas, and then you address them?

For example, water conservation plans. I want to read a short paragraph from a letter we received from the Middle Rio Grande Conservancy District, which is similar to comments I have received from other conservation districts or entities.

The Conservancy questions the Bureau's authority to implement conservation planning as embodied in the most recent guidelines. While the Conservancy recognizes that the Bureau has authority to require districts to develop water conservation plans pursuant to the Reclamation Reform Act, that act does not impose specific detailed requirements regarding how conservation planning should occur. Rather, historically, the nature and extent of conservation planning has been left primarily to decision makers within districts. The Conservancy feels strongly that the local control of that conservancy planning should remain in effect.

They feel that the import of these proposed guidelines is to take control of the conservation planning from the district level and leave it to the Federal level by imposing Federal guidelines in a process that they believe is a product of local decisionmaking.

Now, I understand that water conservation planning in the dry area that we come from, that you are somewhat familiar with, is very different from conservation planning in the Pacific Northwest, which you have a lot of jurisdiction over, also, or in the Deep South or New England.

How do you respond to these concerns about creating broad Federal standards for what are ultimately localized water conservation issues?

DISTRICT WATER CONSERVATION PLANS

Mr. BEARD. Well, I think that is a misinterpretation of what we are trying to do. I would say this, Senator, when the Congress passed legislation in 1982, they directed the Bureau to require of every recipient of reclamation—every district to whom we deliver water, required that those districts develop water conservation plans. So they are district plans. They are not Federal plans.

And the question then has arisen over the years: What is an acceptable plan? How should we approach this problem? And that is the reason why we developed those guidelines. They are not regulations. They are simply guidelines as to what we would suggest be included in those plans.

And I think some districts have gained the impression that this is a requirement being imposed upon them, and it is not. These are guidelines and suggestions of what they might include in a plan and how to include it.

But each plan is going to be different, because each district is different. And each district operates under individual State law.

And we must, by law, defer to State law in terms of how we approach policy, water policy issues, because that is the system on which we are built.

So I would say to you that we have no designs in trying to construct very specific conservation planning regulations. We have specifically rejected that approach.

Instead, what we hope these guidelines will do will assist the individual districts to draft their plans so they can get the most use out of them, and they will be of assistance to the individual States, as the States regulate water.

And they will help guide us, when we deal with these districts when they come in to ask for future benefits, because we are in a situation where, frankly, with the declining budget and declining personnel ceilings, we are going to have to rely to a greater extent on the individual districts to solve many of their problems.

Senator DOMENICI. So it would be my interpretation of what you said that your local people, who are working with ours, that is the Bureau's local people, should interpret their role with reference to the local planning process in the manner you have just described it here today, is that correct?

Mr. BEARD. Those are guidelines. And I would also add that we are trying to work out arrangements for the individual States so that the State water authorities can be a part of that planning process to undertake those plans in an effective way that is consistent with individual State laws.

MIDDLE RIO GRANDE CONSERVANCY DISTRICT

Senator DOMENICI. Let me just ask one additional question in that regard. First, let me thank you for that answer. It is very understandable to me, and I hope it works out that way.

The Mid-Rio Grande Conservancy District is going through a very, very difficult period. I do not know if you are aware of what it is, but—

Mr. BEARD. Yes; it is—

Senator DOMENICI. It is a giant institution, and some think—

Mr. BEARD. It has been for a long time.

Senator DOMENICI. That is right. And some people think its mission is very well defined; some think it is very amorphous.

In any event, the district is being challenged and they are going through a process of saying, maybe they should be in control of the reclamation, conservation, and habitat preservation activities where before they had focused on irrigation.

So that is pretty difficult to make that leap.

We have another problem in the proposals of the requirement that conservancy districts provide the Bureau with detailed inventory of water rights.

However, detailed accounting of water rights in New Mexico would require declarations of pre-1907 rights by individuals asserting such rights.

So, Mr. Commissioner, I am very concerned that any detailed accounting would force New Mexico to conduct adjudications of all water rights within conservancy boundaries in the State.

And let me assure you, not only would that be very expensive, but it would take a long, long time. How do we deal with that?

Mr. BEARD. That is not our intent. I think you may be referencing something where we have asked for a list of the rights that have been approved by the State. But it certainly would not be our intent to do that.

I mean, it would be expensive for us as well, because we would be an integral part of those proceedings, and we do not need to do that. So it is not necessary.

Senator DOMENICI. If we have not been sufficiently detailed in this question, what we will do is we will see if what you have said is satisfactory. If not, we will get you some more detail.

Mr. BEARD. Yes.

Senator DOMENICI. Because I would not think you would want a State with our kind of water right law to think the Bureau is forcing them to adjudicate in courts where we have not adjudicated. Some of those take 20 years.

Mr. BEARD. If we are lucky, they are 20 years. No; and the other thing is that the Middle Rio Grande District may want to communicate directly with me, and we could save some time and make sure that we address their concerns.

Senator DOMENICI. Why do we not just do it the other way, if you would not mind? Would you look into it?

Mr. BEARD. Yes.

Senator DOMENICI. And then report to the committee on what they told you and what your response is, so we can clear up this issue.

Mr. BEARD. Yes, sir.

Senator DOMENICI. I appreciate that very much.

Senator Burns.

MONTANA IRRIGATION SYSTEMS

Senator BURNS. I just have a couple of questions, and thanks for coming today. I need some information from you, and if you could get it to me later on or respond to the committee so that we can make some decisions here, it would be helpful.

Many of our little irrigation systems that were built by the Government with the intent of turning them over to the users, the irrigators when the cost of construction has been largely repaid. We have a number of those systems in Montana. And they are at various points in this process.

Could you tell me which systems in Montana, in your view, are likely to be able to take ownership of these systems? Are there any that you have a history of that we might get a list of that might be in the process of turning them over to the irrigators?

Mr. BEARD. We would be happy to provide you with a list. I would say, just as a general matter, Senator Burns, that our interest is in transferring title or transferring operation and maintenance responsibility where the Federal Government currently performs it in as many instances as we can.

We are involved in the process at the present time, of trying to identify those projects where we can do this quickly.

And any action like that would take an act of Congress, so we will then have to work with the Congress to identify those. As a policy matter, that is the direction we want to proceed.

Senator BURNS. OK. I assume then that you have set up sort of a standard guideline that you use in determining which ones—
Mr. BEARD. A screening process.

PROJECTS NEED REPAIRS

Senator BURNS. Yes; a screening process. I would like to know also, if you could enlighten me on what that looks like, what you look for in that respect. Some of these irrigation systems, as well as those built by the Bureau of Indian Affairs, are in a pretty sad state of affairs.

We are wrestling with trying to get some more money to bring them up to speed. The Government has not upheld, in some places, their bargain. They have taken the O&M money, and they have done something else with it. It has not been put right back into that specific system.

I would like for you to also, when you are looking at this, if you could—now I realize this is a lot of work, but I think it is something that has to be done, because we are talking about something that is very, very serious here when we start talking about water.

You know, whiskey is for drinking, and water is for fighting. And we take that very seriously.

Could you provide me the estimates of the cost of bringing up these systems to the level of repair that would at least allow the delivery of water that the users pay for?

Mr. BEARD. These are Montana projects?

Senator BURNS. Yes.

Mr. BEARD. Yes; we can.

Senator BURNS. As good as you can and as close as you can, I would appreciate that.

Mr. BEARD. Did you want included in that, though, BIA projects as well?

Senator BURNS. Yes.

Mr. BEARD. OK.

FLATHEAD INDIAN IRRIGATION PROJECT

Senator BURNS. I sure do. Because my next question is, was the Crow Tribe—we have a situation up on the Flathead Reservation, and we would like to be brought up to date on that, because I am not real sure we are not in a point there that that should be turned over to the irrigators. And we might take a look into that.

And I would not mind going through some discussions with you. Either I could come to your office or you could come to mine, but I think we ought to meet and discuss some of those kinds of situations.

Mr. BEARD. The Flathead or the Crow, because they are two different problems.

Senator BURNS. I know. The Flathead. The Crow, what stage are your talks in as far as the O&M and as far as the Yellowtail is concerned?

Mr. BEARD. We have just had one set of discussions with them, and we have been passing some paper. But other than the first exploratory meeting with the tribe, we have not had a followup discussion yet about the operation and maintenance potential for a transfer.

But the Flathead, of course, is a separate and much more complicated issue.

Senator BURNS. It sure is. And, Mr. Commissioner, I just want to sit down and somehow find an answer to this issue. The only way we are going to do it is by sitting down and just visit about it and try to find middle ground—where you want to go and where other folks want to go and see if there is a way to get there.

Mr. BEARD. Yes.

Senator BURNS. That is what I would like to do.

Mr. BEARD. I would just say as a general matter, I cannot think of a more difficult, complex, and controversial project than the Flathead project. I have been around it for 10 years, and it is a very difficult issue.

Senator BURNS. Tell me.

Mr. BEARD. Frankly, I think the people who are served by the project deserve better. I think they deserve a break. I think they deserve a resolution of these issues and let's get on with it.

Senator BURNS. They are just getting hammered, you know, in a system that—and there is one of those systems that really need repair. We are losing a lot of water as far as water conservation is concerned there.

And also, could you give me a list of other—

Senator DOMENICI. Senator.

Senator BURNS. Yes, sir.

Senator DOMENICI. Senator, I wonder if you could close the hearing when you are finished?

Senator BURNS. I can finish.

Senator DOMENICI. Well, I understand. But I mean—

Senator BURNS. Right now.

Senator DOMENICI [continuing]. Could I leave, so you could finish?

Senator BURNS. I tell you what—

Mr. BEARD. What about me?

Senator BURNS. No; we want you to stay here and just look at these walls for a while.

No; if I might, Mr. Chairman, we can close this up. I have a couple of other questions, if I can submit in writing and you could respond to the committee.

I just need those first two, though. Give me a list so we can make some decisions on where we want to go with the Bureau of Reclamation.

Mr. BEARD. OK. I will be happy to do so, Senator Burns.

Senator BURNS. Thank you very much. I appreciate that.

SUBMITTED QUESTIONS

Senator BURNS. Thank you, Mr. Chairman.

Senator DOMENICI. Commissioner, might I say also we will work with you as we move through this? You will be in touch with us. Staff knows a lot about what you do. They have been at it for a while.

I am a new chairman, but I think I will be able to catch on by 2 or 3 months. I might know enough about the Bureau to be right by you on the appropriations.

Mr. BEARD. Do I check in my wallet now?

Senator DOMENICI. Yes. [Laughter.]

[The following questions were not asked at the hearing, but were submitted to the Bureau for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY CHAIRMAN DOMENICI

ROLE AND MISSION

Question. At what point does the mission and budget of the Bureau of Reclamation become such that it should be consolidated with other agencies having water resource development responsibilities?

Answer. It appears that there will always be a need for the Federal Government to act as a facilitator for the resolution of western water issues. The individual States in the West have very strong differences. In addition, there exist unique statutory responsibilities in some areas around the country, such as the Lower Colorado River, where the Federal legislation has essentially federalized the river. The Bureau of Reclamation now acts as water master of the Colorado River under the authority of the Secretary of the Interior.

Question. What do you see as the future role and mission of the Bureau of Reclamation?

Answer. Over the last several years, the role and mission of the Bureau of Reclamation changed from dam builder to an agency focused on water management. In the future, we see our mission continuing to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public. We are an integral part of the mosaic of interests and organizations involved in the major Western river systems. We are attempting to help solve the water-related issues and needs in the West through partnerships with the local entities.

Question. What, in your judgement, would be the pros and cons of transferring, consolidating or privatizing the Bureau's operational and maintenance responsibilities?

Answer. The Bureau of Reclamation, for years, has encouraged non-Federal entities to take responsibility to operate and maintain projects. This has been a very successful program. We intend to continue to transfer control whenever feasible. We favor a case-by-case analysis of the benefits of changing the operations and maintenance process to determine the individual benefits and drawbacks. In some cases, the presence of strongly competing interests indicates the need for control to remain in Federal oversight, rather than to transfer or privatize such control.

Question. What would be the pros and cons of providing some type of block grants to the states for water resource development activities?

Answer. Reclamation has been moving towards increased use of partnerships with local entities. Grants are being provided for water reclamation and reuse projects. These grants leverage Federal dollars by providing a maximum of 25 percent of the total costs, with the local entities providing at least 75 percent of the remaining funds. In addition, the proposed water conservation challenge partnerships will require 50 percent cost-sharing by non-Federal entities. We see these activities as more effective than block grants to states.

DEVELOPMENT

Question. To what extent does "development" enter into the future mission of the Bureau of Reclamation, and how does the Bureau of Reclamation define "development"?

Answer. We have re-defined the term "water resource development" within the Bureau of Reclamation. When the Reclamation program was created in 1902, it was envisioned as a program to create water supplies that would encourage settlement of the arid West. The Congress authorized Reclamation to build huge structures to impound and distribute water and to generate electricity.

With dams constructed at the best sites and greater awareness and understanding of the effects of these structures on the environment, Reclamation began to seek non-structural solutions to the management of water in the West. We now see development as promoting the optimum use of available water resources in an economically and environmentally sound manner in the interest of the American public. The term "development" now typically refers to programs, such as the water conservation and water reuse programs in the FY 1996 budget.

FUTURE WATER NEEDS

Question. Can you give the committee an assessment of the future additional water needs in the Reclamation states? How do these needs break out by category, i.e., irrigation, municipal and industrial water supply, fish and wildlife, etc., and how will the additional needs be met by various categories, i.e., M&I conservation, conservation from irrigation, etc.?

Answer. We envision that each of the competing interests that you mentioned, irrigation, municipal and industrial water supply, and fish and wildlife needs, will all request additional water in the future. The Administration requested funds for some innovative water conservation and reuse programs to attempt to demonstrate how the Nation might be able to meet these future needs. We expect to retain our role as facilitator to these competing interests. We do not expect that these needs will be met with new, large water construction projects.

Question. Do you see the need for construction of additional storage for water supply or irrigation projects?

Answer. Basically, we don't see much future or need for construction of large storage reservoirs.

Question. Can conservation or changed priorities alone provide sufficient supplies to support the ever-increasing population in the West?

Answer. Water marketing, wastewater reuse, conservation, and other non-structural solutions are just beginning to be explored. If we were to devote to these innovative concepts a small part of the resources that we've already expended on traditional dam building, we believe we can meet the water needs of the West for decades.

STREAMLINING

In March, the Administration announced additional plans to reorganize and downsize the Department of the Interior. Included in that effort is restructuring of the Bureau of Reclamation. The overall plan was expected to save the Department of the Interior \$3.8 billion and approximately 2000 FTE's over five years.

Question. Specifically, how will this restructuring impact the Bureau of Reclamation? What will the restructuring mean to the Bureau in terms of reduced annual budget requirements and personnel reductions?

Answer. We have been able to reduce our funding requests by over \$50 million a year as a result of the restructuring of Reclamation's program. We estimate cumulative savings of \$250 million from FY 1996 to FY 2000. Reclamation has reduced its workforce since May of 1993 by over 1,500 people. Another 700 people have signed up to take buyouts within the next two years. This will reduce the total workforce in place in FY 1993 by over 25 percent.

TRANSFER OF FACILITIES TO STATE AND LOCAL GOVERNMENTS

Question. How will the Bureau of Reclamation proceed in implementing the transfer of facilities to state and local governments?

Answer. Your question assumes that the transfer of facilities will be to state and local governments. However, the Bureau of Reclamation has not limited implementation to only State and local governments. For example, although in the past the possibility of transferring the Central Valley Project to the State of California has been explored, current internal deliberations have not been limited to transferring projects only to state or local governments. Reclamation is developing an implementation plan for the transfer of assets.

The process of identifying projects suitable for transfer or some alternative management technique, such as public/private partnerships for operating and managing Reclamation projects and under what terms and conditions will apply, is extremely complex and decisions should not be made without thorough analysis.

It is likely that some issues, especially those associated with the multipurpose projects and those on the larger river systems, will require additional analyses and investigations before internal guidelines can be developed or legislation drafted to cover these projects.

Question. What criteria will guide Reclamation in carrying out this proposal?

Answer. Reclamation will develop a procedure with a consistent methodology for evaluating and negotiating the transfer of Reclamation projects. This effort is underway and is an integral part of the implementation plan for the transfer of assets.

Question. What facilities did Reclamation assume could be transferred in arriving at the \$126 million savings figures?

Answer. Savings that result from transfer of title and transfer of responsibility for operation and maintenance of facilities to non-Federal entities could result in estimated savings of \$92 million over 5 years. Those facilities have not yet been identified. The remaining \$34 million in savings would result

from the termination of five small programs that are deemed no longer essential to Reclamation's mission.

Question. The proposal would not transfer facilities of "national importance." How do you define "national importance?" Provide a list of these nationally important facilities for the record.

Answer. As a starting point, projects of "national importance" may include those which involve interstate compacts; an interstate interest in the management of the projects which requires a Federal role to arbitrate or balance the needs of the involved states; international treaties; significant environmental concerns, such as endangered species concerns; and protection of Native American interests.

There are a number of projects which provide benefits to a wide variety of beneficiaries. Federal ownership or control of these projects may be necessary in order to protect the interests of these beneficiaries.

We will continue to further refine the definition of "national importance". Each project is unique. There are site-specific considerations which may not have been identified yet.

Question. What indications of interest have been expressed by state and local interests in taking over Reclamation facilities?

Answer. Some water districts and others have expressed an interest in acquiring projects. It is anticipated that more inquiries will be received once the "ground-rules" are established, i.e., once the method for determining the "sales price" and any other conditions which might be attached to the project has been established. At this point, we expect that congressional authority will be needed before Reclamation can proceed with actual transfers.

Question. What arrangements are contemplated in transferring title?

Answer. Reclamation is currently examining what conditions and concerns must be taken into account when projects are transferred. There are generic concerns, such as compliance with NEPA and other environmental laws, the protection of other beneficiaries, and consideration of the interests of the States and others in how water is used in river basins and watersheds. There are site-specific concerns, as well. The arrangements will have to be negotiated on a case-by-case basis, but within the framework of law and the general guidelines Reclamation will develop and provide its negotiators.

Question. Will the facilities be sold or simply turned over?

Answer. It is expected that the facilities will be sold.

Question. How will the sale price be determined? Will it be based on the replacement value or original construction cost?

Answer. Reclamation is in the process of determining the basis on which the value of the asset and the price will be set.

SMALL PROGRAMS

Question. What are the 5 small programs that Reclamation has determined are no longer essential to its mission?

Answer. As part of the National Performance Review Phase II five small programs are proposed for elimination. They are the (1) Distribution System Loans Program; (2) Rehabilitation and Betterment Act Loan Program; (3) the Emergency Loans Program; (4) Groundwater Recharge Demonstration Program;

and (5) the Small Reclamation Projects Act Loan Program. No new activities will be started in any of the listed programs and work underway will be phased out over the next several years. We expect no adverse impacts for current loan recipients.

Question. Why are they no longer essential?

Answer. We felt that these programs were no longer essential to our mission. In the case of the groundwater recharge demonstration program, we have already learned all we could from the program. At a time when Federal funding faces unprecedented reductions, the terms and conditions of these programs are difficult to justify. The Department will issue a Secretarial Order announcing that no new applications will be accepted under these programs.

Question. What is the total savings expected by eliminating these programs?

Answer. The total savings is estimated to be approximately \$34 million over the next 5 years.

NEW INITIATIVES AND PROPOSED LEGISLATION

Question. What new programs and initiatives are being proposed in the Reclamation budget for FY 1996, and how much is being requested for each? Provide a brief explanation for each item for the record.

Answer. For FY 1996 we are requesting 14 new studies in the General Investigations Program, one new loan, six new programs in the Construction Appropriation, and three new facilities scheduled for transfer to operation and maintenance status in the Operation and Maintenance Program. I will be glad to provide a list for the record.

(Information for the record)

A list of the FY 1996 new programs and funding follows:

GENERAL INVESTIGATIONS

Ashley\Brush Creeks Optimization Study, Utah (\$75,000) - The study will investigate the operation of existing projects on Ashley and Brush Creeks.

Kansas Comprehensive Investigation, Kansas (\$100,000) - This evaluation will look at Reclamation projects within the State and evaluate their effectiveness in meeting future availability of water.

Lower Colorado Indian Water Management Study, Arizona, California, Nevada (\$75,000) - This study includes Indian reservations located throughout the States. The purpose of this study is to provide assistance to the tribes for water resource management.

Lower Owens River Environmental Study, California (\$100,000) - Primary objectives are to restore native riparian vegetation, restore habitat for indigenous and migratory birds, restore and create backwaters, and create warmwater fisheries.

Malibu Creek Fishery Enhancement Study, California (\$50,000) - A study conducted by California Department of Fish and Game showed that the steelhead trout population could increase threefold if habitat upstream of Rindge Dam could be accessed by the steelhead. The study will address ways of rehabilitating the steelhead run by removal of Rindge Dam.

Nebraska Water Supply Assessment, Nebraska (\$100,000) - This study is a cooperative effort with the State and Indian reservations. Its purpose is to provide technical and economic analyses on possible water supply problems due to groundwater quality contamination with nitrates and pesticides in rural domestic, small communities, and urban areas.

Oklahoma Water Supply Study, Oklahoma (\$100,000) - The investigation will examine the under-used capacity of McGee Creek Project to better manage and develop resources to meet identified needs of small towns and rural areas in central and east central Oklahoma.

Rio Grande\Low Flow Conveyance Channel Study (LFCC), New Mexico (\$100,000) - Because of high Rio Grande flows since the late 1970's the Reservoir has filled and flooded the lower reaches of the LFCC. The LFCC has not been operated since 1985 because of sediment deposition in the Reservoir's headwater area. The study will identify and comprehensively evaluate structural modifications and operational changes to the LFCC and the Rio Grande Floodway system.

Rio Grande\Rio Bravo International Basin Assessment, Texas (\$200,000) - The study will produce a joint Reclamation/International Boundary and Water Commission report which will compile a Geographical Information Systems database of regional water use and demand for surface and groundwater. This accumulated data will assist in the examination of water conservation, drought management, water treatment and recycling, water quality and salinity, and watershed management options, along with water resource related issues such as wetlands, riparian areas, endangered species, and fish and wildlife habitat.

Southern California Coastal Water Supply Study, California (\$50,000) - The investigation will examine possibilities for collecting nonpoint runoff before it merges with ocean water so that it can be used to help satisfy the municipal and industrial demands of southern California.

Southern Oregon Coastal River Basins, Oregon (\$100,000) - Reclamation will work with the State and local groups to identify and evaluate measures to achieve stream restoration with an emphasis on restoration of coastal runs of anadromous fish.

Southwest Colorado Rural Water Supply Study, Colorado (\$75,000) - This study will develop alternatives for providing a safe and reliable domestic water supply to the rural areas of southwestern Colorado and portions of the Southern Ute Indian Reservation.

Washington River Basin Planning, Washington (\$75,000) - Reclamation will assist the State and local planning groups to identify potential solutions to water resource problems that threaten anadromous fish stocks in tributaries to the Columbia River and in coastal streams.

Yellowstone River Basin Study, Montana (\$140,000) - Present irrigation facilities are entrapping and blocking endangered species from migrating up Yellowstone River and its tributaries. This study will investigate and determine the best strategy for meeting fish passage requirements at diversion dams and larger water intakes in the Yellowstone River Basin for candidate listed and certain game species.

LOAN PROGRAM

Douglas County - Milltown Hill, Oregon (\$100,000) - Milltown Hill is one of the Small Reclamation Project Act loan application reports that the Secretary approved in May 1994 and transmitted to Congress. A dam would be constructed and a gravity pressure distribution pipeline would be constructed to deliver water to the nearby Yoncalla and Scotts Valley areas. The project would provide water for water quality improvement, fish and wildlife enhancement, streamflow enhancement, recreation, fire protection, municipal and industrial use, rural domestic supplies, and irrigation. In addition, the dam would provide flood control, facilitate downlisting of the threatened Columbia whitetailed deer, and enhance economic development in an economically depressed area.

CONSTRUCTION PROGRAM

Water Conservation Challenge Partnerships (\$9,000,000) - Water conservation and efficiency innovations will play a critical role in improving water management in the 17 Western States. Reclamation proposes to establish a cost-shared program to fund partnerships for water conservation.

National Fish and Wildlife Foundation (NFWF) (\$3,255,000) - Reclamation proposes to begin specifically programming funds to be used on cost-shared, joint projects with the NFWF. Federal funds will be used to leverage non-Federal cost-sharing on at least a 1:1 matching basis to provide increased funding and enable partnerships with non-Federal entities.

Title II New Format (Colorado River Basin Salinity Control Project), Colorado, Utah (\$6,000,000) - The Bureau of Reclamation proposes to redefine the Federal role in the salinity control program. The purpose of the new format will be to control salinity for Colorado River water users in the United States using a basin-wide approach to implement the most cost-effective controls possible.

Glen Canyon Unit (Colorado River Storage Project, Recreation and F&W Facilities), Arizona (\$160,000) - Studies will be initiated for temperature control structures at Glen Canyon Dam as described in the Glen Canyon Environmental Impact Statement.

Energy and Water Product Efficiency Standards (Science and Technology) (\$450,000) - Executive Order 12902, Section 505, proposed "franchising," in which an agency would provide the services of its employees to another agency on a reimbursable basis. A task force of engineers and economists from Reclamation will develop current standards for energy and water conservation. These are to be used by Reclamation and will also be available to other agencies within and outside the Department of the Interior.

Improved River Basin Management Control System (Science and Technology) (\$300,000) - Operating efficiency of Reclamation water and power facilities will be improved through the placement of computer control systems in powerplants. The result will be additional water and power revenues, as well as reduced replacement costs.

OPERATION AND MAINTENANCE

Paradox Valley Unit (Colorado River Basin Salinity Control Project) Colorado (\$442,000) - Construction of the remaining brine injection facility will be completed and transferred to operation and maintenance status.

Mni Wiconi Project, South Dakota (\$273,000) - Additional water delivery system will be transferred to operation and maintenance status.

Umatilla Project, Oregon (\$60,000) - Construction of the Columbia/Cold Springs Canal, a feature of the water exchange facilities, will be completed and transferred to operation and maintenance status.

Question. Are there any programs or activities included in the Bureau of Reclamation budget request which require enactment of legislation in order to proceed? If so, provide a list of those items to include a brief description, the amount of funding requested, why legislation is required, and the status of legislation to be proposed by the Executive Branch or legislation currently pending in Congress.

Answer. The two programs that require enactment of legislation in order to proceed are the restoration activities for the Trinity River Division of the Central Valley Project and the Colorado River Salinity Control Project Title II New Format.

A reauthorization is required to continue restoration activities for the Central Valley Project, Trinity River Division. Fourteen agency members of the Trinity Task Force decided to seek additional authority and cost ceiling in order to complete necessary restoration activities. Legislation is being proposed as a result of the task force recommendations and because the Trinity River Basin Act, Public Law 98-541, only authorized appropriations until October 1, 1995. The draft reauthorization includes a \$38 million appropriation ceiling for restoration work. The proposed language was forwarded to Congress on March 14, 1995.

An authorization is required to implement the redefined Federal role in the salinity control program for the Colorado River Basin Salinity Control Project. The purpose of the Title II New Format proposal is to control salinity using a basinwide approach to implement the most cost-effective controls possible.

H.R. 930 would allow the Secretary to implement a variety of cost-effective salinity control measures and would increase the appropriation ceiling by \$75 million to implement the New Format proposal. A similar bill, S. 523, passed the Senate on April 27, 1995. Work underway on the currently authorized Colorado River Basin Salinity Control Project is being completed within the indexed appropriation authorization ceiling.

CENTRAL VALLEY PROJECT RESTORATION PROGRAM

The Central Valley Project Restoration Fund was established to provide funding from project beneficiaries for habitat restoration, improvement and acquisition, and other fish and wildlife restoration activities.

The committee has been most concerned with how priorities are set and the extent to which General Fund appropriations are used to carry out the purposes of the Central Valley Project Improvement Act (CVPIA).

DONATIONS FROM GENERAL FUND

Question. What provisions are made in the Act for use of General Fund appropriations?

Answer. While the term "donations from any source" might be interpreted to provide authority to contribute general funds to the Restoration fund, the CVP Restoration Fund was established primarily as a separate fund using revenues generated from water and power users and from other non-Federal contributions, and not the general taxpayer. Public Law 102-575 provides for the deposit of "donations from any source," with the only stipulation being that monies from non-Federal entities for specific purposes shall be expended for those purposes only.

Question. Was a primary goal of the CVPIA to derive funding available for restoration work to the greatest extent possible from project beneficiaries and not appropriations?

Answer. Yes, the intent of the legislation was to fund activities from revenues generated from water and power users and not from the taxpayers.

Question. What criteria govern if and when General Fund appropriations are to be sought and used? Would these appropriations go into the Fund and be applied by formula, or are the appropriations to be project specific?

Answer. At present, General Fund appropriations are sought and used to carry out certain non-reimbursable mitigation and restoration activities under the CVPIA. Reimbursable activities are financed through project beneficiary payments. The non-reimbursable funds are requested under Reclamation's construction account and are not "passed through" the CVP Restoration Fund. They are not applied by formula but are for project specific work.

Question. Update the committee on what has or is being done to establish priorities on work to be undertaken under the CVPIA. Does the budget request reflect the priorities agreed to in this process?

Answer. The CVP Restoration Fund Roundtable (Roundtable) membership includes the Bank of America, Central Valley Project Water Users Association, City of Palo Alto Utilities Department, Ducks Unlimited, East Bay

Municipal Utility District, Environmental Defense Fund, Metropolitan Water District of Southern California, Northern California Power Agency, Sacramento Municipal Utility District, and Share the Water Coalition. This Roundtable requested that Secretary Babbitt consider its priorities when formulating the FY 1996 budget request to Congress. It is our feeling that the budget request, as submitted, does reflect those priorities.

Question. What is being done to insure that the work being done is based upon the best available science?

Answer. The Department of Interior, namely Reclamation and the U.S. Fish and Wildlife Service, have highly skilled technical and scientific personnel. We feel that a "check and balance" system on their work exists since CVPIA is a highly visible program which also includes State of California participation and participation from other interested constituents.

Question. Can you provide for the record a priority list of the activities which were proposed, but not included in the FY 1996 budget?

Answer. All of our priority items have been included in the FY 1996 budget request.

Question. What guidelines determine if an activity should be funded from the Restoration Fund or from the regular appropriation account?

Answer. Each section of Title XXXIV has been reviewed and a determination has been made by Reclamation and the Service as to what activities can and cannot be funded with the Restoration Fund. In most cases, the legislation is specific as to the source of funding whether it be regular appropriations or the Restoration Fund.

Question. What is the difference between non-reimbursable and reimbursable activities? Does the CVPIA make a distinction between the two, and if so, what is the distinction as it relates to appropriation of funds?

Answer. As it relates to CVPIA, non-reimbursable is considered as the Federal share of specific activities which will not be recovered through water and power project repayment. In other words funding would be provided through the General Fund appropriation with no repayment requirement. The reimbursable portion of a specific activity is considered to be the amount collected into the Restoration Fund which must be collected before it can be expended. This meets the repayment requirement for the activity. Reference is made to Section 3406, where most subsections specifically identify the funding requirement.

SHASTA DAM TEMPERATURE CONTROL DEVICE

Question. What is the total amount included in the FY 1996 budget request, including non-Federal funds, to continue work on the Shasta Temperature Control Device?

Answer. The total amount included in the FY 1996 budget request is \$31,830,000. This figure includes \$20,000,000 that would be provided by the State. To date the State of California has not made a commitment to pay its portion. The request also includes the use of \$11,281,000 from the Restoration Fund and \$549,000 from the Construction program.

Question. Please summarize the financial status of the Shasta TCD.

Answer. A contract to construct the Shasta TCD was awarded early in FY 1995. FY 1996 will be a critical year. If the State of California does not provide the \$20,000,000 for the project it will be necessary for the Bureau of Reclamation's budget to be realigned in order to pay the contractor for the TCD project.

Question. What is the status of the State's commitment to provide the required non-Federal funding?

Answer. We asked for a commitment from the State by March 31, 1995 agreeing to provide the \$20,000,000. We have not received that commitment.

Question. What impact would a shortfall of \$20,000,000 have on project schedules?

Answer. If funds are not available elsewhere we would be forced to terminate the contract. We would issue a suspension of work notice and would then be responsible for the contractors overhead costs. Upon receipt of funding we would have to re-initiate the contract. Cancellation of the contract would cause a three to five year delay and more than double the cost.

Question. Explain the footnote on page 179 of the budget justification under work proposed for FY 1996.

Answer. At the time the FY 1996 budget was being prepared, we assumed that the State would meet its commitment to provide its share of the \$20,000,000 of the TCD project in the second year of construction. However, knowing that the State might not be able to provide the total amount in one year, we made the determination that any shortfalls would come from adjustments in Reclamation's FY 1996 request.

Question. How will the Bureau proceed if the State is unable to provide its non-Federal contribution?

Answer. As the footnote on page 179 indicates, we will provide funding for the TCD through Reclamation's budget and will be forced to identify offsets from other projects in order to meet our commitment to the TCD. A formal budget amendment is currently being considered to adjust the FY 1996 budget request.

UNSCREENED DIVERSIONS

Question. The committee is aware of some promising work that has been done in the area of unscreened diversions. Review briefly the need to provide screens at diversion structures and what work is being done to evaluate improved and non-traditional screens.

Answer. The injury or death of juvenile fish at water diversion intakes has long been identified as a major source of fish mortality in the Central Valley. There are more than 300 separate irrigation, industrial, and municipal water supply diversions along the Sacramento River within the designated winter-run chinook critical habitat reach between Redding and Sacramento. Also, there are about 1,800 small diversions in the Delta, and up to several hundred unscreened diversions within the San Joaquin River basin.

The California Department of Fish and Game (DFG) has determined that unscreened diversions pose a significant threat to efforts to protect and restore Central Valley anadromous fish stocks.

Positive barrier screens have long been tested and used to prevent or reduce the loss of fish. Both the State and the Federal governments have ongoing programs to abate the unscreened diversions problems. These government entities, i.e., the State Departments of Fish and Game, and Water Resources (DWR) and the Federal National Marine Fisheries Service (NMFS), Fish and Wildlife Service (FWS), Corps of Engineers, and Bureau of Reclamation (BOR), are working together to implement a joint agency unscreened diversions abatement program. One element of this program is a study and research program.

In regard to non-traditional screens, acoustical and electrical fish barrier guidance systems were installed and are being evaluated by a committee comprised of local, state, and Federal participants.

In 1994 an acoustical fish barrier system was installed at a pumping plant on the Sacramento River near Princeton, California. The project is continuing in 1995 and has been modified based upon information gained from the first year of testing.

In 1994 an acoustical fish barrier was installed above Georgiana Slough on the Sacramento River to discourage downstream migrating anadromous fish from entering the Slough. For FY 1995, the DWR has taken over the experimental barrier program. Reclamation is providing \$350,000 directly to the DWR for this year's efforts. Total costs provided by DWR exceed \$2 million.

In addition to the acoustical and electrical fish barrier projects discussed above, full model testing of an experimental screen design is being performed at Reclamation's Laboratory in Denver. Testing indicates that this screen has potential and will be cost competitive with other screen designs. This experimental screen could resolve a number of problems typically associated with conventional screens. A patent on the design is being sought.

Question. Why is no funding requested for FY 1996? Is it strictly budgetary or did it lack sufficient priority in the coordinating group?

Answer. A request of \$6 million from Energy and Water appropriations for FY 1996 has been made for the Program, which represents the Federal share of costs associated with this program.

COLORADO RIVER BASIN SALINITY CONTROL PROJECT

The Bureau of Reclamation's budget request includes a proposal to undertake Title II of the Colorado River Basin Salinity Control Project under a new format.

Question. Why is it necessary to change the program authorization? Will the new approach reduce the cost per ton to remove salt from the river? Is there a comprehensive plan which prioritizes the proposed work based on contribution of salt removal?

Answer. Reclamation is nearing completion of the most cost-effective portions of the authorized program. Broader authorities are needed to enable Reclamation to work cooperatively and in a timely manner with private and public interests to produce more cost effective salt removal.

The new approach has already succeeded in reducing costs. Local implementation has reduced the cost of the Lower Gunnison Basin Unit by 40 percent. Similar results are being obtained in the private system in the Grand

Valley Unit, but we need to broaden the base of opportunities with authorities that are not restricted to a few units (areas).

Reclamation, BLM, USDA, and the Salinity Forum have jointly developed an implementation plan for the program based on cost-effectiveness. The plan is included in the report "Water Quality Standards for Salinity, Colorado River System, October 1993." This New Format Program would allow Reclamation to continue to participate more effectively in its implementation.

Question. Does the Bureau have authority to proceed under the new format without enactment of authorizing legislation? What is the status of legislation to be proposed by Reclamation?

Answer. Reclamation technically could begin using the new format concept in a very limited way on the existing projects. However, existing appropriation ceilings would be adequate for little more than one more year of work.

Legislation authorizing the new format (S.523) passed the Senate on April 27, 1995. H.R. 930 has been introduced in the House. A hearing is scheduled in the House on May 11, 1995. A markup of the bill is scheduled for later in May.

Question. The Budget justification indicates that the total cost of the program is "to be determined". What is the total estimated cost of this work and how does it impact the appropriation ceiling?

Answer. The cost of the program is driven by the rate of growth in the basin. As population and water use increase, the salinity program is adjusted to keep pace with this growth to offset its impacts and maintain water quality. The 1993 Joint Evaluation Report, prepared by Interior and Agriculture, estimated that a remaining \$480 million state/federal program would be needed to control salinity through 2015. The new program would help reduce this cost through competition and innovation. The proposed legislation authorizes an incremental ceiling-increase of \$75 million. Additional appropriation ceiling increases might be needed in the future.

Question. How does the Bureau plan to proceed in FY 1996 absent authorizing legislation? Can the \$6,000,000 of non-Federal funds shown in the budget justification be used without legislation?

Answer. Without new legislation, Reclamation would use the \$6,000,000 to accelerate the completion of the remaining cost-effective portions of the authorized program scheduled for completion by FY 1998 within existing ceiling limitations.

YUMA DESALTING PLANT

I understand that the Yuma Desalting Plant has been placed in ready reserve (non operational) status.

Question. Review briefly where the project stands as it relates to completion of construction. What work needs to be completed and what is the estimated cost to undertake the remaining work?

Answer. The current total project cost estimate for the Colorado River Basin Salinity Control Project - Title I Division program is \$458 million, about 3.8 percent below the current authorized ceiling of \$476 million.

Through fiscal year 1995, actual program expenditures will total \$400 million, approximately \$230 million of which was expended for construction of the desalting plant.

Of the remaining \$58 million about \$33.1 million is for future work at the plant site, \$13.5 million is for additional work at the protective and regulatory wellfield, \$5.8 million is for an irrigation efficiency improvement program, and \$5.6 million is for land acquisition at Painted Rock Reservoir.

At the plant itself, construction was essentially complete in 1992 and the plant is available for operations. However there are a number of design and construction deficiencies for which repairs or modifications are required. The requested funding level to accomplish these repairs and modifications is generally between \$200,000 and \$500,000 per year over the next 5 years. The purpose of performing these repairs and modifications is to allow the plant to be restarted within a 1-year time frame, if necessary to allow Reclamation to meet the Mexican treaty and Colorado River Basin States commitments.

Question. Why was the facility placed in non-operational status versus closing it completely?

- Discuss the pros and cons of closing the facility completely.

Answer. Under current conditions the plant could be required to meet future salinity requirements of the Mexican treaty and water quantity commitments to the Basin States. We have budgeted to hold the plant in ready reserve status through fiscal year 1997 in order to allow time to explore and develop alternatives for meeting the water quality treaty commitments of the United States to Mexico. By holding the plant in ready reserve status, all options are left open and significant controversy averted. In addition, and as directed by language in the House Report accompanying the Energy and Water Development Appropriation Act of 1995 (Public Law 102-316), maintaining ready reserve status will enable us, if necessary, to convert the plant to an operational mode within 1 year.

Other alternatives include leasing a portion of the plant to non-Federal interests, mothballing the plant, or abandoning the plant. In addition, we are continuing to explore opportunities to implement any of these or other alternatives which may result in cost reductions for the taxpayers and allow the United States to meet treaty obligations with Mexico.

Question. What is the justification for investing \$2,300,000 in this facility in light of its non-operational status? Provide a detailed breakout of both the \$2.3 million construction and \$6.3 million O&M request for FY 1996.

Answer. Of the \$2.3 million requested for the Colorado River Basin Salinity Control Project - Title I Division construction program, \$200,000 is to correct flood damage to the bypass canal which is required to bypass the saline irrigation return flows from the Wellton Mohawk Irrigation and Drainage District around the Colorado River; \$250,000 is for test train building modifications which will allow jointly funded water quality research projects to be conducted; \$50,000 is to repair the leaking solids contact reactor, thus maintaining the plant in an operational condition; \$300,000 is for storage of approximately \$9 million worth of desalting membranes which will become useless unless kept in refrigerated storage; \$750,000 is for desalting research directed toward reducing the cost of water recovery and reuse; \$250,000 is for irrigation efficiency improvement measures to reduce agriculture return flows; \$50,000 is for Painted

Rock land acquisition studies for flood protection; and \$450,000 is for Colorado River Basin Salinity Control Project - Title I related non-contract costs.

Of the \$6.3 million O&M funds requested, \$3.4 million is for the maintenance and operations contract to operate the facility in support of the area office and maintain the plant in a ready reserve status, \$1.5 million is for salaries, overhead and related support costs, \$100,000 is for materials, supplies, etc., \$500,000 is to pay existing power contracts, and \$100,000 is to replace failed and obsolete equipment. The remainder of \$700,000 is for non plant costs related to the operation and maintenance of the bypass canal and for salinity management required for the treaty with Mexico.

Question. Update the committee on the status of the review of plant operation, including completion schedule, issues or problems being addressed, etc.

Answer. Currently the water supply conditions in the Colorado River reservoirs are adequate, as long as Reclamation has the continued use of conserved water from the Coachella Canal Lining Project and the Basin States do not use their full allotment of water. The future operation of the plant is important to the seven Basin States and Mexico, as it impacts their future water supplies. The States have generally supported not operating the plant for the current water year, as long as it can be restarted within 1 year's notice. The Department of the Interior is proposing minimal funding to keep the plant in a ready reserve status. As the institutional issues are resolved, Reclamation will also be proposing to market the unused water capacity from the plant to obtain non-Federal revenue. This will enable Reclamation to fulfill the water requirements of the Basin States, treaty requirements with Mexico and will reduce future costs to the Federal Government.

Question. How effective has plant operation been compared to design parameters? What is the cost comparison in terms of ton of salt by other alternatives being considered by Reclamation?

Answer. The plant was essentially completed in 1992 and placed into operation. It was successfully operated at one-third capacity from April 1992 until January 1993 when it became apparent that releases from Painted Rock Dam on the Gila River would enable the United States to meet Mexico's Treaty requirements. It has not operated since January 1993, as the salinity requirements of Minute 242 have been met through bypassing all Wellton-Mohawk Irrigation and Drainage District agriculture drainage water to the Gulf of California and through control of drainage pumping below Imperial Dam. The results of the plant operation during the April 1992 to January 1993 period indicated that the expected plant design performance criteria were met and the annual expected operational costs could be reduced from \$33 million to \$27 million. The operating cost per ton of salt removed is \$104, or the cost of recovered water is \$320 per acre foot.

AUBURN DAM PROJECT

Question. What is the status of the Auburn Dam project in California?

Answer. Construction of Auburn Dam has been in hiatus since the early 1980's when the foundation contract for the double curvature thin arch dam was completed. Currently, two studies are underway which should determine whether

a dam at the Auburn site is a feasible alternative to addressing water resource issues in the area. The Corps of Engineers is developing a plan to provide greater American River flood protection for the Sacramento area through their American River Watershed Investigation. On a parallel course, the Bureau of Reclamation through the American River Water Resource Investigation is studying the water resource needs of Placer, El Dorado, Sacramento, Sutter and San Joaquin counties. Both studies are scheduled to be completed and presented to the Congress in 1996 for an informed decision relating to the flood control and water resource needs of the region.

LOAN PROGRAM

Question. The budget for FY 1996 includes follow-on funding for several loans initiated in 1995. Are the Bureau of Reclamation and the Department committed to funding these loans through completion?

Answer. The Bureau of Reclamation and the Department are committed to funding these loans through completion as budgetary resources permit.

Question. The FY 1996 budget request again indicates that Reclamation will be proposing legislation to replace the existing loan program. Why is it necessary to change a program that has worked so well for nearly 40 years? What is the status of the Reclamation proposal or other legislation related to the loan program?

Answer. Events occurring after the submission of Reclamation's FY 1996 budget have changed our proposal to replace the existing loan program. As a result of the National Performance Review Phase II, the Secretary recently announced that five small programs would be eliminated. The Small Reclamation Projects Act Loan Program was one of these. A formal budget amendment is currently being prepared to adjust the \$5 million requested in the FY 1996 budget.

We feel that this program is no longer essential to the Bureau's mission and can and should be handled on a local level. At a time when Federal funding faces unprecedented reductions, the terms and conditions of the loan program are difficult to justify for the Federal government. The Department will issue a Secretarial order announcing that no new applications will be accepted under these programs.

Question. One new loan is being requested in the FY 1996 budget. Is that loan being executed under the existing or the proposed criteria? If under the proposed criteria, explain why you are proceeding in advance of authorizing legislation.

Answer. The new loan being requested in FY 1996 is the Douglas County - Milltown Hill in Oregon. This loan was approved by the Secretary in May 1994 under existing criteria.

Question. A large part of the total estimated cost of these loans is included under "other Federal". Please explain what these "other Federal" costs are and how they relate to the project loan.

Answer. When we refer to "other Federal" we are referring to Treasury funds available pursuant to P.L. 101-508 Title V "Federal Credit Reform Act of 1990". The Act requires the Federal budget to account for credit program costs

so that they may be more easily compared with the costs of other Federal spending.

The costs of a direct loan are divided into two components. The first is the subsidy component (costs which are not expected to be returned to the government), and the second is the unsubsidized component (amount the government expects borrowers to repay fully on a present value basis over the life of the loan).

When reviewing the Bureau of Reclamation's FY 1996 Budget for the Loan program, you will find funding delineated as Reclamation and other Federal. The Reclamation funding represents the subsidy portion of the total loan. The other Federal (Treasury) funding represents the unsubsidized portion of the total loan.

The loan recipient will receive a disbursement from the Federal government for both the Reclamation and Treasury portions.

HOOVER DAM VISITORS CENTER

Question. Update the committee on the current status, including costs, of the Hoover Dam Visitor Center.

Answer. The contractor for construction of the Visitor Center and Parking Structure has completed the major construction and finish work. We are currently in the closeout phase of the contract which consists of joint inspections and testing of all equipment, facilities, and systems for compliance. The contractor's onsite work is expected to continue through May 1995.

The Visitor's Center is scheduled for a June 1995 opening. Installation of communication equipment, temporary exhibits, a temporary movie system in Theater 1, furniture, and other work necessary to allow visitation have started. Fabrication and installation of Interpretive Exhibits/Hardware materials and equipment are planned immediately after necessary funding becomes available. This contract is scheduled to last 1 year.

The cost estimate for total visitor center facilities, which includes Transmission Tower and Roadway Relocations, Elevators, Visitor Center and Parking Structure, and the Interpretive Exhibits and associated hardware, totals \$88.7 million in appropriated funds plus interest during construction of \$35 million for a total cost of \$123.7 million.

Question. When is the Visitor Center scheduled to open to the public?

Answer. Opening of the Hoover Dam Visitor Center is scheduled for June 1995. The contract for planned Interpretive Exhibits/Hardware cannot be awarded until approval of the pending funding reprogramming request.

Therefore, only temporary displays and a movie will be provided. Reclamation staff are currently in the process of preparing these temporary exhibits.

Question. The committee understands that the contractor has submitted claims totaling over \$20,000,000. How is this claim expected to affect final cost of the project? When do you expect the claim to be finalized?

Answer. The contractor submitted a Request For Equitable Adjustment (REA) in the amount of \$23 million. The REA has not been certified as a claim by the contractor to date. Any amount reached in settlement of claims or the REA would directly affect the total cost for the visitor facilities.

The Government officially responded to the contractor's Request for Equitable Adjustment and requested a Finding of Fact meeting to discuss differences. The contractor declined and stated that a certified claim will be submitted. A certified claim has not been received. Time for settlement is dependent on the contractor's actions.

Question. What is the urgency and justification for the reprogramming of \$4,000,000 in the current fiscal year to the Hoover Visitors Center when it appears that the reprogramming will have little or no impact on the completion and installation of the interpretive exhibits?

Answer. Reprogramming of the \$4,000,000 is urgently needed to allow award of the contract for Interpretive Exhibits and Hardware and for noncontract costs associated with the contractor's Request for Equitable Adjustment.

The Bureau of Reclamation is planning to open the visitor center without the planned interpretive exhibits and hardware for the safety of the public. A primary purpose of the visitor facilities is to protect the public from traffic conditions on top of Hoover Dam. Use of temporary exhibits and displays with a temporary movie in Theater 1 will allow the center to be opened while the permanent interpretive exhibits are being constructed. The Exhibit Area, about 2,800 square feet, and Theaters 2 and 3, each seating 140 people, cannot be utilized until interpretive works are completed. The lack of completed interpretive exhibits will adversely affect the planned flow of the public through the facilities, and, therefore, the exhibits need to be completed as soon as possible.

FOREIGN TRAVEL

Question. Mr. Commissioner, please provide for the record a list of all the foreign trips you or members of your staff have made over the past two years. Include the total cost of the trip, the appropriation account which paid for the trip, a list of the people participating in the trip, and a summary of the justification for the trip.

Answer. The Bureau of Reclamation's foreign travel for the past two years is summarized beginning with the third quarter of Fiscal Year (FY) 1993 and ending with the date of this hearing. In many cases, foreign travel is partly or wholly reimbursed by other entities. The travel that is not reimbursable is charged to an appropriation account(s) that benefitted from the trip. Therefore, the travel is frequently shared between appropriation accounts. Listed below are the costs, net appropriation, description, participants, and details of reimbursement for each individual trip:

- \$12,000 April 1993 trip to Thailand to provide technology transfer and technical assistance to the Thai Applied Atmospheric Resources Research Project.
Participant was Bernard Silverman; Reimbursement of \$12,000 provided by the U.S. Agency for International Development.
- \$ 2,600 May-June 1993 trip to Canada to attend the American Society of Limnology meeting.
Participant was Thomas Beddow.

- \$11,600 August-September 1993 trip to Japan and South Korea to participate in the 25th Congress for Hydraulic Research.
Participants were Philip Burgi and Ted Yang; Reimbursement of \$900 provided by the International Association of Hydraulic Research.
- \$10,000 May 1993 trip to Japan to represent Reclamation on a Wind and Seismic Effects panel.
Participant was Steven Markwell.
- \$ 8,700 May 1993 trip to Canada to provide technical assistance on Coursier Lake Dam.
Participants were Robert Corwin and Philip Sirls; Reimbursement of \$8,700 provided by B.C. Hydro.
- \$ 5,600 May 1993 trip to Canada to attend the International Souris-Red Rivers Engineering Board meeting.
Participants were Neil Stessman and Michael Whittington.
- \$ 1,800 June 1993 trip to Canada to attend the Northern Plains Water Management workshop.
Participant was Roger Burnett.
- \$46,700 August-September 1993 trip to the Netherlands to attend the annual International Commission on Irrigation and Drainage meeting.
Participants were Wayne Deason, Sammie Guy, Ronald Johnston, and Douglas Wegener.
- \$36,800 June-July 1993 trip to the People's Republic of China to participate in discussions with the People's Republic of China Ministry of Water Resources. Trip to Japan to meet with the Japan Dam and Engineering Center and Ministry of Construction.
Participants were Robert Hickox, Ivyl Taylor, and Darrell Webber.
- \$41,200 June 1993 trip to South Korea to provide technical assistance in the collection, analysis, and interpretation of crosshole seismic data.
Participant was Richard Hopkins; Reimbursement of \$41,200 provided by the U.S. Army.
- \$10,000 July-August 1993 trip to Thailand to provide technical assistance and training on field operations.
Participant was Curtis Hartzell; Reimbursement of \$10,000 provided by the U.S. Agency for International Development.
- \$ 5,400 June 1993 trip to Austria to provide technical support to the Middle East Peace Talks.
Participants were Richard Ives and Kevin Price.

- \$15,100 July 1993 trip to Thailand to provide technology transfer/technical assistance to Thai personnel.
Participant was Bernard Silverman; Reimbursement of \$15,100 provided by the U.S. Agency for International Development.
- \$ 4,900 June 1993 trip to Sweden to attend the International Conference on Hydropower, Energy, and the Environment.
Participant was Michael Roluti.
- \$ 2,300 June 1993 trip to Canada to attend the Western System Coordinating Council meeting.
Participant was Shawn Patterson.
- \$41,800 June 1993 trip to Thailand to conduct Dam Safety Surveillance Training.
Participants were Robert Campbell, Robert MacDonald, Jay Stateler, and Chris Veesaert; Reimbursement of \$18,000 provided by the U.S. Agency for International Development.
- \$ 1,600 July 1993 trip to Canada to attend the Northwest Power Pool Operating Committee meeting.
Participant was Terrald Kent.
- \$25,600 July-August 1993 trip to Egypt to review project issues and provide technical assistance.
Participants were Sammie Guy and Thomas Simms; Reimbursement of \$25,600 provided by the U.S. Agency for International Development.
- \$ 6,600 July 1993 trip to Canada to attend the Institute of Electrical and Electronics Engineers meeting.
Participants were Carl Agee and Gary Osburn.
- \$16,000 July-August 1993 trip to Turkey to conduct an Environmental Impact Assessment Training workshop.
Participants were Bruce Ellis and Patrick Mangan; Reimbursement of \$16,000 provided by the Food and Agriculture Organization.
- \$ 4,300 July 1993 trip to Canada to attend the Institute of Electrical and Electronics Engineers meeting.
Participant was Charles Lennon.
- \$ 5,400 July-August 1993 trip to Mexico to make presentations at the International Symposium on Water Economics.
Participants were Charles Calhoun and Richard Porter; Reimbursement of \$5,400 provided by the Government of Mexico.

- \$12,900 August-September 1993 trip to Thailand, Bahrain, Saudi Arabia, Jordan, Egypt, Israel, and Turkey to present a series of technical lectures at seminars.
Participant was James Pierce; Reimbursement of \$8,200 provided by the American Concrete Institute.
- \$ 8,300 November 1993 trip to Japan to attend the International Desalination Association's World Conference on Desalination and Water Treatment.
Participants were Lisa Rowley and Susumu Suemoto.
- \$ 8,900 August-September 1993 trip to Egypt to evaluate the field activities of the Planning Studies and Models Project.
Participant was Joseph Wensman; Reimbursement of \$8,900 provided by the U.S. Agency for International Development.
- \$ 5,000 August-September 1993 trip to Canada to attend the International Association of Public Practitioners conference.
Participants were Curtis Brown and Marian Echeverria.
- \$ 4,700 September-October 1993 trip to Canada to participate in the Association for Preservation Technology conference.
Participant was Todd Rutenbeck.
- \$30,000 October-November 1993 trip to Egypt to participate in the 61st Executive Meeting of the International Commission on Large Dams.
Participants were William Fraser, James Graham, and Robert Strand.
- \$ 800 November 1993 trip to Canada to attend the Alberta Irrigation Projects Association conference.
Participant was Allen Powers.
- \$ 7,500 August-September 1993 trip to Japan to present a series of lectures for the Japanese Ministry of Construction on contractor selection methods.
Participant was Bruce Moore; Reimbursement of \$7,500 provided by the Japanese Ministry of Construction through the International Engineering Consultants Association.
- \$51,700 September 1993-January 1994 trip to Pakistan to provide technical assistance in canal lining for the Punjab Water Conservation Project.
Participant was Frederick Tan; Reimbursement of \$51,700 provided by the Asian Development Bank.
- \$14,400 September-October 1993 trip to Brazil to provide technical assistance in improving the irrigation sector in northeast Brazil.
Participant was Darrell Smith; Reimbursement of \$14,400 provided by the Government of Brazil.

- \$19,100 September-October 1993 trip to Saudi Arabia to participate in a Reverse Osmosis Cooperative Research Program. Participants were Lawrence Haugseth and Edward Lohman; Reimbursement of \$19,100 provided by the U.S.-Saudi Arabia Joint Economic Commission.
- \$14,000 October 1993 trip to Thailand to coordinate and oversee implementation of the Thai Applied Atmospheric Resources Research Project. Participant was Bernard Silverman; Reimbursement of \$14,000 provided by the U.S. Agency for International Development.
- \$ 1,700 October 1993 trip to Canada to present a paper at the 51st Annual Plains conference. Participant was Kimball Banks.
- \$15,600 October 1993 trip to Spain to provide technical assistance on the Reservoir Eutrophication Project. Participants were Frederick Nibling and Richard Roline.
- \$ 9,100 October 1993 trip to Pakistan to participate in the International Workshop on Canal Linings and Seepage. Participant was Thomas Mitchell; Reimbursement of \$9,100 provided by the Pakistan Water and Power Development Authority.
- \$33,800 October-November 1993 trip to Germany to deliver and perform testing on specialized equipment. Trip to Egypt to oversee the evaluation of the work and review program activities. Participants were Felix Cook, Umberto Milano, and Lorelynn Rux; Reimbursement of \$33,800 provided by Reclamation contracts and the U.S. Agency for International Development. The costs associated with Reclamation contracts are charged back to the appropriate water users.
- \$ 4,900 October 1993 trip to the People's Republic of China to attend the Middle East Multilateral Water Working Group meetings. Participant was Richard Ives.
- \$ 4,300 November 1993 trip to South Korea to inspect equipment and check contract status at supplier's plants. Participant was Robert Logan; Reimbursement of \$4,300 provided by Reclamation contracts. These costs are charged back to the appropriate water users.
- \$ 6,000 November 1993 trip to Taiwan to provide technical assistance to the Taiwan Provincial Water Conservancy Bureau on water project sites. Participant was Ted Yang; Reimbursement of \$6,000 provided by the American Institute of Taiwan.

- \$32,700 November-December 1993 trip to Taiwan to provide technical assistance to the Taiwan Provincial Water Conservancy Bureau on water project sites.
Participants were Peter Aberle, Clarence Duster, Mark McKeown, Alan Richardson, and Jack Tyler; Reimbursement of \$32,700 provided by the American Institute of Taiwan.
- \$11,500 November-December 1993 trip to Brazil to review the designs and construction of pressure pipelines.
Participant was Paul Carlson; Reimbursement of \$11,500 provided by the Government of Brazil.
- \$11,300 December 1993 trip to Jordan to attend a seminar on the Potential of Artificial Recharge of Groundwater.
Participants were Robert George and Judith Hamilton.
- \$ 6,100 May 1994 trip to Russia to attend an international symposium on River Engineering Methods.
Participant was Ted Yang.
- \$ 8,400 March-April 1994 trip to Saudi Arabia to install the Automatic Silt Density Index Unit and train staff on its use.
Participant was Edward LHota; Reimbursement of \$8,400 provided by the Government of Saudi Arabia.
- \$17,800 February- March 1994 trip to Thailand to participate in the Thai Applied Atmospheric Resources Research Project Phase I Closeout meetings.
Participants were Curtis Hartzell and Bernard Silverman; Reimbursement of \$17,800 provided by the U.S. Agency for International Development.
- \$24,500 January-February 1994 trip to Israel and Jordan to discuss a possible cooperative program with Government water agency officials relating to salinity control. Trip to Egypt to meet with U.S. Agency for International Development personnel and the Planning Studies and Models Project team leader.
Participants were Stanley Gappa, Edward Imhoff, Richard Ives, and Kevin Price; Reimbursement of \$1,500 provided by the U.S. Agency for International Development.
- \$13,800 February 1994 trip to Japan to witness pump model testing for the Gallegos Pumping Plant.
Participants were John Grass and David Hulse; Reimbursement of \$13,800 provided by the Gallegos Pumping Plant unit supply.

- \$10,500 January-March 1994 trip to Egypt to provide concrete laboratory expertise to the Aswan Project.
Participant was Jeffrey Hart; Reimbursement of \$10,500 provided by the U.S. Agency for International Development.
- \$31,900 February-May 1994 trip to Egypt to provide inspection and technical advice to the Aswan Project.
Participant was Reed Olsen; Reimbursement of \$31,900 provided by the U.S. Agency for International Development.
- \$ 9,000 February-March 1994 trip to Cyprus to install, test, and review newly acquired software and hardware.
Participant was Mark Trevino; Reimbursement of \$9,000 provided by the Government of Cyprus.
- \$ 6,500 March 1994 trip to Brazil to review current project issues with Reclamation team members.
Participant was Sammie Guy; Reimbursement of \$6,500 provided by the Government of Brazil.
- \$20,200 March-May 1994 trip to Egypt to provide inspection and technical advice to the Aswan Project.
Participant was Russell Troutman; Reimbursement of \$20,200 provided by the U.S. Agency for International Development.
- \$11,100 April 1994 trip to Canada to attend the American Society for Testing of Materials conference.
Participants were Richard Fuerst, Amster Howard, and Leo Kinney.
- \$ 9,400 April 1994 trip to Oman to attend the Middle East Multilateral Water Working Group meetings.
Participants were Ellen Abart and Richard Ives; Reimbursement of \$9,400 provided by the U.S. Department of State.
- \$ 5,600 April 1994 trip to Oman to attend the Middle East Multilateral Water Working Group meetings.
Participant was Richard Ives.
- \$ 9,700 April-May 1994 trip to Hungary to attend the Advance Study Institute on Floods.
Participant was William Lane; Reimbursement of \$2,200 provided by NATO.
- \$28,300 May 1994 trip to Bulgaria to attend the International Commission on Irrigation and Drainage conference.
Participants were Wayne Deason, Franklin Dimick, and Douglas Wegener.

- \$ 2,500 June 1994 trip to Finland to attend the International Conference on Future Groundwater Resources at Risk.
Participant was Judith Hamilton.
- \$19,900 May 1994 trip to the People's Republic of China to meet with the People's Republic of China Ministry of Water Resources. Trip to Bulgaria to attend the International Committee on Irrigation and Drainage meeting.
Participants were Daniel Beard and Sammie Guy.
- \$10,800 May-June 1994 trip to Egypt to install and provide training of the River Systems Operations Model.
Participant was Nancy Parker; Reimbursement of \$10,800 provided by the U.S. Agency for International Development.
- \$ 5,000 May-June 1994 trip to Italy to participate in the World Meteorological Organization Scientific Conference on Weather Modification.
Participant was Bernard Silverman; Reimbursement of \$2,800 provided by the U.S. Agency for International Development.
- \$12,900 June 1994 trip to Canada to attend the American Society for Testing and Materials meeting.
Participants were William Austin, Timothy Dolen, Jeffrey Farrar, James Pierce, and Jay Swihart.
- \$ 4,300 June 1994 trip to France to participate in the World Bank Donor Conference on the Aral Sea.
Participant was John Osterberg; Reimbursement of \$3,200 provided by the U.S. Agency for International Development.
- \$ 5,300 July 1994 trip to Japan to participate in the U.S.-Japan Workshop on Improving the Safety of Dams.
Participant was Michael Stevens; Reimbursement of \$5,300 provided by the U.S. Corps of Engineers.
- \$ 3,800 July 1994 trip to Canada to attend the International Congress on Environmental Geotechnics.
Participant was Mark Gemperline.
- \$ 1,600 July 1994 trip to Canada to attend the Northwest Power Pool Operating Committee meeting.
Participant was Terrald Kent.
- \$ 1,700 July 1994 trip to Canada to participate in the Western Systems Coordinating Council meeting.
Participant was Michael Roluti.

- \$ 5,300 August 1994 trip to Canada to attend the American Fisheries Society meeting.
Participant was Wayne Deason.
- \$ 7,700 September 1994 trip to Singapore to present a paper at the Fifth International Conference on Geotextiles, Geomembranes, and Related Products. Trip to Thailand to lecture a short course on Geotextiles, Geomembranes, and Geosynthetics for Ground Improvement.
Participant was Alice Comer; Reimbursement of \$900 provided by the International Geotextiles Society.
- \$16,000 July-August 1994 trip to Saudi Arabia to perform an acting role for the team leader.
Participant was Kevin Price; Reimbursement of \$16,000 provided by the U.S.-Saudi Arabia Joint Economic Commission.
- \$16,900 July-August 1994 trip to New Zealand to participate in a peer review of the Waikato Water Supply Project.
Participants were Daniel Drake and Douglas Wegener; Reimbursement of \$16,900 provided by WaterCare Services, Ltd.
- \$ 1,900 August 1994 trip to Canada to attend the Electric Power Research Institute Hydro Working Group meeting.
Participant was Darian Ingram.
- \$ 3,900 August 1994 trip to arrange the 1995 Northwest Irrigation Operators field tour.
Participants were Wesley Green and Evan Rasmussen; Reimbursement of \$3,900 provided by the Northwest Irrigation Operators.
- \$33,700 September 1994 trip to the People's Republic of China to participate in a study tour of the South to North Water Transfer Project.
Participants were Lowell Pimley, Richard Schaefer, and Ted Yang; Reimbursement of \$9,900 provided by the People's Republic of China State Planning Commission.
- \$ 8,600 August-September 1994 trip to Egypt to perform inspection services on the Aswan Project.
Participant was Jeffrey Hart; Reimbursement of \$8,600 provided by the U.S Agency for International Development.
- \$ 1,600 August 1994 trip to Canada to attend a Western Systems Coordinating Council Control meeting.
Participant was Hoa Vu.
- \$11,700 June-July 1994 trip to Mexico to meet with Mexico's National Water Commission on Border Water Issues.
Participants were Daniel Beard, Christopher Beardsley, Sammie Guy, and Zell Steever.

- \$ 9,600 September 1994 trip to Sweden to participate in a technical exchange concerning a nuclear waste facility. Participants were Steven Beason and Gary Turlington; Reimbursement of \$9,600 provided by the U.S. Department of Energy.
- \$20,500 August-September 1994 trip to Taiwan to provide technical assistance to the Taiwan Provincial Water Conservancy Bureau on water project sites. Participants were Clarence Duster, Mark McKeown, and Jack Tyler; Reimbursement of \$20,500 provided by the American Institute of Taiwan.
- \$ 4,800 September 1994 trip to Canada to attend the International Souris-Red Rivers Board meeting. Participants were Neil Stessman and Michael Whittington.
- \$14,500 September 1994 trip to the People's Republic of China to participate in discussions with the People's Republic of China Ministry of Water Resources specialists concerning the South to North Water Transfer Project. Trip to Saudi Arabia to meet with Reclamation's team leader concerning the HYDROS Project. Participant was Robert Hickox.
- \$34,700 September 1994-January 1995 trip to Egypt to provide technical assistance to the Egyptian Electrical Authority on the Aswan Project. Participant was Frank Hunter; Reimbursement of \$34,700 provided by the U.S. Agency for International Development.
- \$ 4,100 September 1994 trip to Mexico to attend the International Program for Technology Research in Irrigation and Drainage meeting. Participant was Stanley Ponce.
- \$18,600 September 1994 trip to Spain to participate in cooperative studies on reservoir eutrophication. Participants were James LaBounty and Frederick Nibling.
- \$ 1,900 September 1994 trip to Canada to attend the Garrison Consultative Group meeting. Participant was Edward Osann.
- \$ 2,100 September 1994 trip to the People's Republic of China to attend the International Conference on Irrigation Management Transfer. Participant was Cynthia Dyballa.
- \$36,700 October-November 1994 trip to South Africa to participate in the 18th Congress of the International Commission on Large Dams. Trip to Swaziland and South Africa to participate in study tours. Participants were Daniel Beard, Sammie Guy, John Smart, and Chris Veesaert.

- \$10,300 November-December 1994 trip to Australia to participate in the Australian National Committee on Large Dams conference. Participant was John Smart; Reimbursement of \$6,300 provided by the Australian National Committee on Large Dams.
- \$ 3,600 October 1994 trip to the Netherlands to attend the International Scientific Symposium on the Breaching of Dikes. Participant was Clifford Pugh; Reimbursement of \$1,000 provided by the Netherlands Center for Coastal Research.
- \$ 3,000 November 1994 trip to the People's Republic of China to attend the International Conference on Wetland Systems for Water Pollution Control. Participant was Eric Stiles.
- \$47,000 October-November 1994 trip to Cyprus to install software and hardware for the Southern Conveyor Project. Participants were Nancy Parker, Thomas Ryan, Troy Sandblom, and Mark Trevino; Reimbursement of \$47,000 provided by the Cyprus Water Development Department.
- \$ 5,200 October 1994 trip to Israel to provide technical assistance in the area of pipeline corrosion protection. Participant was Thomas Johnson; Reimbursement of \$5,200 provided by the Mekoroth Water Company.
- \$23,800 October-November 1994 trip to the Marshall Islands, Micronesia, and Palau to develop an Information Resources Management Strategic Plan for the Office of Territorial and International Affairs. Trip to American Samoa to assess the methodology for closing the FY93-94 financial books. Participants were Carol Christie and John Kunzler; Reimbursement of \$23,800 provided by the Office of Territorial and International Affairs.
- \$41,100 November 1994 trip to Taiwan to provide technical assistance to the Taiwan Provincial Water Conservancy Bureau on water project sites. Participants were Clarence Duster, Peter Grey, Mark McKeown, and Jack Tyler; Reimbursement of \$41,100 provided by the American Institute of Taiwan.
- \$24,400 November 1994 trip to Taiwan to participate in the Taiwan Provincial Water Conservancy Bureau Water Resources Review Meeting. Participants were James Malila, Richard Throner, and Ted Yang.
- \$ 5,400 October 1994 trip to Oman to participate in the Middle East Multilateral Water Working Group meetings. Participant was Richard Ives; Reimbursement of \$5,400 provided by the U.S. Department of State.

- \$ 4,100 November 1994 trip to Greece to participate in the Middle East Multilateral Water Working Group meetings.
Participant was Richard Ives; Reimbursement of \$4,100 provided by the U.S. Department of State.
- \$ 2,700 November 1994 trip to Canada to attend the WESDAC PCmaster software training course.
Participant was Anthony DeLoach.
- \$ 6,600 November 1994 trip to the People's Republic of China to review designs for generators for the Mindoka Powerplant.
Participant was Lyle Klataske; Reimbursement of \$6,600 provided by Reclamation contracts. These costs are charged back to the appropriate water users.
- \$24,200 November-December 1994 trip to Saudi Arabia to participate in a seminar on Membrane Preservation Techniques and to provide tests and repair equipment at Umm Lujj Plant.
Participants were Edward LHota and Kevin Price; Reimbursement of \$24,200 provided by the U.S.-Saudi Arabia Joint Economic Commission.
- \$ 4,100 November-December 1994 trip to Germany to perform an inspection of stator cores for Grand Coulee Powerplant.
Participant was Lynn Abbott; Reimbursement of \$4,100 provided by Reclamation contracts. These costs are charged back to the appropriate water users.
- \$ 7,000 January 1995 trip to the People's Republic of China to review designs for generators for the Minidoka Powerplant.
Participant was Ronald Jones; Reimbursement of \$7,000 provided by Reclamation contracts. These costs are charged back to the appropriate water users.
- \$20,000 February 1995 trip to Japan to address and attend the Japanese Federation of Bar Associations conference. Trip to the People's Republic of China to meet with the Ministry of Water Resources.
Participants were Daniel Beard and Robert Hickox; Reimbursement of \$9,300 provided by the Japanese Federation of Bar Associations.
- \$ 5,500 January 1995 trip to Belgium and the United Kingdom to review the International Program for Technology Research in Irrigation and Drainage activities.
Participant was Stanley Ponce.
- \$14,000 January 1995 trip to Spain to provide technical expertise concerning the Tous Dam failure.
Participant was Kenneth Bullard; Reimbursement of \$14,000 provided by the Colegio de Ingenieros de Caminos, Canales y Puertos.

- \$10,400 January-February 1995 trip to Brazil to discuss possible technical assistance concerning Itaipu Dam. Participants were Steven Clark and Richard Ives; Reimbursement of \$10,400 provided by Itaipu Binacional.
- \$ 4,200 February 1995 trip to Germany to perform an inspection of stator cores for Grand Coulee Powerplant. Participant was Lynn Abbott; Reimbursement of \$4,200 provided by Reclamation contracts. These costs are charged back to the appropriate water users.
- \$13,500 March 1995 trip to Japan to perform an inspection of equipment for the Gallegos Pumping Plant. Participants were David Hulse and John Shisler; Reimbursement of \$13,500 provided by Reclamation contracts. These costs are charged back to the appropriate water users.
- \$ 2,300 March 1995 trip to Canada to attend a workshop on Risk Assessment for Dam Safety Evaluations. Participant was David Achterberg.
- \$ 2,800 April 1995 trip to Germany to participate in the General Assembly of the European Geophysical Society. Participant was Ute Vetter.
- \$48,200 March-April 1995 trip to Taiwan to provide technical assistance to the Taiwan Provincial Water Conservancy Bureau on water project sites. Participants were Clarence Duster, Peter Grey, Mark McKeown, Jac Tyler, and Ted Yang; Reimbursement of \$48,200 provided by the American Institute of Taiwan.
- \$ 5,300 April 1995 trip to Italy to attend the International Symposium on Field Measurements in Geomechanics. Participant was Randall Welch.

Question. What foreign travel is contemplated for the remainder of FY 1995 and FY 1996? Provide similar information as requested in the previous question for those trips.

Answer. The projected foreign travel for the remainder of FY 1995 and beyond is expected to remain at a similar level with about the same combination of reimbursable and non-reimbursable costs. A more definite projection is not available as each trip is evaluated on a case by case basis considering the costs and benefits.

ANIMAS-LA PLATA PROJECT

Question. Commissioner Beard, are the Department and the Bureau of Reclamation totally committed to the Animas-La Plata Project and to seeking sufficient budgetary resources annually to keep the project moving forward on an efficient schedule?

Answer. The Department and the Bureau of Reclamation are committed to moving forward with the Animas-La Plata Project. We are working diligently and in close cooperation with project sponsors, especially the Southern Ute Tribe and the Ute Mountain Ute Tribe, to complete environmental compliance requirements for the project.

As we move ahead with NEPA compliance work, Reclamation finance managers will continue to review funding needs. Upon completion of all actions required for a construction start, Reclamation plans to seek the necessary budgetary resources to keep the project moving forward on an efficient schedule but within agency and department budgetary constraints.

Question. Are there any prerequisites, other than the final supplement to the EIS, that would preclude the Bureau from initiating construction in FY 1996?

Answer. Initiation of construction work in fiscal year 1996 is contingent upon completing the work necessary for compliance with the National Environmental Policy Act (NEPA) and implementing a new Record of Decision. The 404(b)(1) Analysis, to fulfill Clean Water Act compliance requirements, will be included as an attachment to the Supplement to the Final Environmental Statement (Supplement) and will be submitted to Congress. With the completion of the NEPA requirement, as outlined in the CEQ guidelines, the Approval to Initiate Construction can be reissued. The only other prerequisite is the Federal Energy Regulatory Commission approval for relocation of a natural gas pipeline, which is needed by June 1996.

Question. What is the current schedule for filing the final supplement with the court? Do you foresee any reason why you would not meet that schedule?

Answer. The present schedule is to file the Supplement with Environmental Protection Agency in October 1995. After the requisite 30 day public comment period, the Record of Decision should be signed by the end of December 1995. There is no requirement to file the final Supplement with the court.

The original schedule was to file the Supplement in July 1995, however, changes suggested by the Tribes through their Indian Self Determination Act contracts with Reclamation resulted in additional work requirements. Through these contracts, the Tribes have added great value to the quality of environmental compliance activities for the project. We do not anticipate further delays in our current schedule.

Question. Have all requirements of the court been complied with?

Answer. On February 16, 1994 a Consent Decree was filed regarding the Four Corners Action Coalition, et al. lawsuit. Reclamation agreed not to perform cultural resources-related ground-disturbing activities prior to completion of the Final Supplement. As such, the lawsuit was dismissed. Reclamation is complying with the provisions of the Consent Decree and is not otherwise under court order regarding this project.

Question. Briefly review for the committee the source and level of non-Federal participation in the project.

Answer. A cost-sharing agreement for project construction between the Project beneficiaries and the United States was executed on June 30, 1986, and provided for construction of the Project in two phases. Phase One costs of the Project are shared among several entities; Phase Two (\$160.1 million) will be

totally financed by non-Federal entities. The Phase One cost-sharing arrangements in this agreement are:

- \$ 457.9 million - Federal Share
- \$ 42.4 million - Colorado Water Resources and Power Development Authority
- \$ 7.3 million - Animas-La Plata Water Conservancy District, Colorado
- \$ 75,000 - Animas-La Plata Water Conservancy District, Colorado (15 annual payments of \$5,000)
- \$ 50,000 - Montezuma County, Colorado (lump-sum payment)
- \$ 12.8 million - San Juan Water Commission, New Mexico
- \$ 5.6 million - Colorado Water Conservation Board

Total Phase One and Phase Two non-Federal cost-sharing is \$228,325,000 out of the present total project costs of \$710,238,000.

Question. What is the status of the repayment contracts and do you foresee any problem in finalizing those that have not been completed?

Answer. A contract was executed with the Animas-La Plata Water Conservancy District on January 11, 1988, and confirmed by the La Plata County District Court on April 20, 1988.

A second repayment contract was executed with the San Juan Water Commission on January 8, 1990, approved by referendum on April 17, 1990, and validated by the Court on August 16, 1991.

Contracts with the Ute Mountain Ute Tribe and Southern Ute Indian Tribe have been negotiated and resolutions of approval as to form have been passed by the respective tribes. Final review of both of these contracts has been put on hold pending completion of the supplemental environmental work on the Project. However, to assure that the Colorado Ute Indian Water Rights Settlement Act (Public Law 100-585) was properly interpreted in the contracts, a preliminary review of the negotiated language was accomplished by the Department of the Interior prior to acquiring resolutions of approval as to form. The resolutions are sufficient assurances that the contracts will proceed to orderly execution.

Repayment contracts for relatively small amounts of water for the La Plata Conservancy District and the Navajo Nation will be executed subsequent to initiation of construction.

Question. Now, the FY 1996 budget request included \$4,134,000 for Ridges Basin Dam and Collection System. How much of the \$4,134,000 is for relocation of the Northwest Gas Pipeline?

Answer. The initial construction work on the relocation of the Northwest Gas Pipeline is part of the proposed Ridges Basin Dam Foundation and Excavation Contract. A total of \$450,000 is associated with this contract. Another \$324,000 will be expended for land acquisition for the pipeline corridor. This brings the total to be expended for the relocation work to \$774,000 in FY96. The remainder of the FY96 budget request is for non-contract costs associated with completing preconstruction requirements, construction contract preparation, Indian Self-Determination and Education Assistance Act (638) contract negotiations, and program administration.

Question. What is the schedule for award for the first major construction contract? Can this schedule be advanced and, if so, how much additional funding would be required in FY 1996? How would the additional funding be used?

Answer. The scheduled award date for the Ridges Basin Dam Foundation and Excavation Contract, currently planned as a contract with the Ute Mountain Ute Tribe, is June 1996. The timing of the environmental documents does not allow contract award schedule advancement. The FY 1996 budget proposed for the Animas-La Plata Project is adequate to meet the projected NEPA commitment, certain preconstruction requirements, and award of construction contracts associated with the utilities relocation for Ridges Basin Dam.

Question. Assuming environmental compliance, provide for the record the Bureau's annual funding requirement through completion. Include the optimum funding schedule if different from the Bureau's current budget planning schedule.

Answer. Analyses of project costs for land acquisition, design, construction, and environmental mitigation show that a consistent annual funding level between \$30 million and \$40 million would be an optimum funding schedule. Coupled with cost share contributions, a consistent funding level would enable more efficient project management, especially when scheduling work with both Colorado Ute Indian Tribes as directed by the Colorado Ute Indian Water Rights Settlement Act.

ACREAGE AND CONSERVATION GUIDELINES

I would like to talk a bit about the Bureau's recently-issued proposed acreage and conservation guidelines. Many of the conservancy districts in my state have expressed serious concerns about the particulars of the guidelines and about the general policies which underlie them.

For example, I would like to read a short paragraph from a letter I recently received from the Middle Rio Grande Conservancy District, which is similar to comments I have received from several of the conservancy districts in my State:

"The Conservancy questions the Bureau's authority to implement conservation planning as embodied in the most recent guidelines. While the Conservancy recognizes that the Bureau has the authority to require districts to develop water conservation plans pursuant to the Reclamation Reform Act, that Act does not impose specific, detailed requirements regarding how conservation planning should occur. Rather, historically, the nature and extent of conservation planning has been left primarily to decisionmakers within districts.

The Conservancy feels strongly that local control of conservation planning should remain in effect. The Conservancy feels that the import of the proposed guidelines is to take control of conservation planning from the district level and move it to the federal level by imposing federal 'guidelines' on a process that should be the product of local decisionmaking."

WATER CONSERVATION PLANS

Question. How does the Bureau respond to these concerns about creating broad Federal standards for what are ultimately localized water conservation issues?

Answer. This question was answered in the transcript.

Another problem I see is the proposal's requirement that conservancy districts provide the Bureau with detailed inventories of water rights. However, detailed accounting of water rights in New Mexico would require declarations of pre-1907 rights by individuals asserting such rights. Thus, I am concerned that any detailed accounting of water rights would force New Mexico to conduct adjudications of all water rights within conservancy boundaries, which would be extremely costly and take a very long amount of time.

Question. How would the Bureau deal with such a problem?

Answer. This question was answered at length in the transcript.

QUESTIONS SUBMITTED BY SENATOR HATFIELD

Klamath Basin Ecosystem Restoration Office

For almost two years, an effort has been underway to address the myriad water quality, water quantity and endangered species concerns plaguing the Klamath Basin in Oregon and California. This effort, which includes the coordination of actions by federal agencies, local governments, Indian tribes, private interest groups and industry, has been led by the Klamath Basin Ecosystem Restoration Office (ERO). This office, which is funded primarily by the Bureau of Reclamation and the Fish and Wildlife Service, with additional support from the Forest Service and Bureau of Land Management, is also playing a critical role in the coordination of the Upper Klamath Basin Working Group. This Working Group is the genesis of my vision to base the identification of ecosystem restoration opportunities on a strong foundation of community support, cooperation and consensus.

Recognizing the ERO's critical role in the ecological restoration efforts of the basin, I wrote to Secretary Babbitt on November 21, 1994 and requested that he include funding in the Interior Department's FY 1996 budget request for the ERO.

Question. Did Reclamation include funding in its FY 1996 budget request for operation and/or staffing of the Klamath Basin ERO? If not, why not?

Answer. We are requesting \$1,500,000 for FY 1996 for the Klamath Basin Ecosystem Restoration Office restoration projects.

Question. Please outline the level of funding and other support now being provided to the ERO by Reclamation. What level of funding and/or support is being provided by the other Federal agencies in the basin?

Answer. Since the establishment of the ERO in the summer of 1993, Reclamation has assisted in the efforts of restoration. Reclamation provides ERO with office space, administrative support, use of vehicles, and funding for restoration activities. Funding of approximately \$1,000,000 from FY 1994 funds has been obligated for a variety of restoration projects throughout the watershed. Reclamation is in the process of providing \$660,000 of FY 1995

funding to restoration activities. The Fish and Wildlife Service is contributing \$440,000 and the Forest Service and BLM contribute in-kind services.

Question. Has your agency explored the duplication of the ERO structure in any other watersheds in the West?

Answer. Ecosystem restoration is a high priority within Reclamation. Reclamation is currently developing policy to guide agency-wide aquatic and watershed restoration activities. Data is being gathered on experiences in the Klamath Basin and in other Reclamation offices. Examples of such activities include the following.

The Pacific Northwest Region of the Bureau of Reclamation participates in many watershed councils whose goal is to improve the ecosystem management of the respective watershed. Among these are the Grande Ronde Model Watershed Council sponsored by the State of Oregon, and the Henry's Fork Watershed Council jointly sponsored by an irrigation district and an environmental group in Idaho. In these cases, Reclamation participates with other Federal agencies, the states, local governments, public interest groups, Indian tribes, and individuals to find solutions to natural resource problems. Reclamation's participation allows it to address the Federal interest concerning water management issues without interfering with the authorities and sensitivities of the other parties. In addition, by participating, but not leading those groups, we reduce the total cost to the Federal sector.

The Upper Colorado Region has been involved in numerous multi-agency/state team efforts regarding ecosystem issues. Primarily, these efforts are related to endangered species concerns. At present, major team efforts include the Upper Colorado Basin Recovery Implementation Program and the San Juan River Recovery Implementation Program. Other efforts include the June Sucker Studies on the Provo River, the Bluntnose Shiner Studies on the Pecos River, and the Silvery Minnow Studies on the Rio Grande River.

Our Lower Colorado Region participates in interagency working groups. These groups consist of state, Federal, municipal, and Indian tribes with interests on the Lower Colorado River. Reclamation leads the Lower Colorado River Work Group, and is a participant in a multi-agency group working on a habitat conservation plan for the Lower Colorado River.

The Great Plains Region currently has two studies in place to explore the impact of water development on the ecosystems of the Yellowstone and Missouri Rivers.

Upper Klamath Basin Working Group

I convened the Upper Klamath Basin Working Group on March 15, 1995 in an effort to bring basin interests together to work on a consensus basis to identify ecosystem recovery and water quality enhancement efforts which also benefit basin economics and reduce drought impacts. This group has been meeting now for almost one month. I understand that one project now being developed by the Bureau of Reclamation may, at some point, be considered by the Klamath Basin Working Group. This project, on the Lower Klamath River bordering the Lower Klamath National Wildlife Refuge, could potentially provide endangered species habitat, off-stream water storage and waterfowl habitat.

While I recognize that this project is far from being finalized or endorsed as a priority by the consensus-based Klamath Basin Working Group, I still would like to ask the Bureau some basic questions about its status.

Question. First, what is the status of the project?

Answer. Several private land owners have approached Reclamation and the Fish and Wildlife Service (Service) with the idea of selling their farm lands to the United States. These lands are within the boundaries of the Klamath Lake Reservation established by Executive Order 924, which was signed by Theodore Roosevelt in 1908. A portion of the lands within the boundary was converted to private ownership prior to the Executive Order. The lands that are in question for purchase are located within the Klamath Drainage District. There may be some acreage located in the California portion of Lower Klamath Lake. These lands are served by annual surplus water rental.

The Lands For Public Trust (The Trust) has begun discussions with the land owners within the District to determine the extent of willing sellers. Approximately 10,000 acres have been identified as potentially available for purchase. The Trust is pursuing a process to acquire these lands. Reclamation and the Service are working with interested landowners to develop a conceptual plan for the management of these lands should they be purchased by the United States.

Question. How much do you expect it to cost? Is this cost similar to other potential projects in the basin which could provide similar water storage and species benefits?

Answer. As with any federal land acquisition, the federal government is limited to purchase prices not to exceed the market value as determined by an appraisal. Landowners are concerned there could be a considerable spread between the asking price and the appraised price.

Land values will vary within the basin. Factors include productivity, capital improvements, climatic limitations and water availability. Private lands within the District are considered Class B water contractors by Reclamation and have somewhat lower status for water delivery within the Klamath Irrigation Project. The availability of water has historically been questioned during times of severe drought as in the summers of 1992 and 1994.

The ability to provide storage and species benefits on these lands is similar to other lands within the basin. The type of species benefitted may vary with location and management practices that may be adopted for these lands. Lands within Lower Klamath Lake have proven to be very productive for waterfowl and are used extensively by Bald Eagles.

These lands are located near the outlet of the Klamath Straits Drain. This drain serves as the outlet for drainage water from the Klamath Irrigation Project. It is possible that these lands could be managed in such a fashion as to improve the quality of water being released from the project to the Klamath River.

Question. Can you share the costs and management responsibilities of the project with other federal agencies?

Answer. We believe that federal lands located within Lower Klamath Lake could best be managed by Reclamation and the Service. These lands provide benefits that are common to the mission of both agencies. Cost of management of these lands could be shared by both agencies.

Question. What is the potential for having some costs covered by private interests?

Answer. Reclamation currently has no authority to have some of the costs covered by private interests.

Question. Does the project have the potential to reduce the impacts of drought in the basin?

Answer. The amount of demand that these lands have on supply relates directly to the land management practices. We believe that the conceptual plan may include a dry fallow option during years of questionable supply. This could reduce the demand by approximately 30,000 acre feet of irrigation water.

Question. What other projects is the Bureau working on which may provide multiple benefits to the basin like the one described above?

Answer. Within the Klamath Basin, Reclamation has also been involved in planning the development of the Wood River Ranch, which will provide multiple benefits to the Upper Klamath Basin. Our involvement has been advisory to the Bureau of Land Management.

1995 Klamath Operations Plan

I understand the Bureau recently completed its first draft of the 1995 Klamath Operations Plan.

Question. Please outline the basic principles of the 1995 operation plan for the committee.

Answer. The plan provides sufficient water to meet the needs of the endangered fish, salmon and steelhead, Refuge operations, and farming. Tribal Trust assets will also be protected. The plan was written during the beginning of what was expected to be a continuation of the drought. It was finalized during a time that there was excess precipitation, so a dry year scenario was not addressed.

Question. What are the water conditions in the basin this year, and how do they compare to the past 10 years?

Answer. Precipitation through May will be approximately 135% of average which should produce near average inflows to Upper Klamath Lake this summer. Six of the last 10 years have produced below normal inflows to project reservoirs. This year is a significant improvement in comparison with recent years.

Question. Do you anticipate any significant alterations in project operations this year because of the amount of water currently in the system?

Answer. We expect to have normal operations this year. Although precipitation was above normal, the dry land absorbed the excess precipitation, which means operations will be about normal.

Question. Does the plan fulfill federal trust responsibilities to federally recognized tribes within the basin?

Answer. Reclamation believes that Trust Responsibilities will be protected this water year. The schedule of flows outlined in the Federal Energy Regulatory Commission's license to PacificCorp will be met, and elevations required on project reservoirs for the protection of the endangered fish will also be met or exceeded.

Question. What is the current water level in Upper Klamath Lake? Your 1995 Operations Plan outlines the goal of keeping Upper Klamath Lake "filled to above 4,142.4 feet through June." What is the probability of meeting that goal in light of the recent level of precipitation in the basin?

Answer. As of May 2, 1995, Upper Klamath lake is at Elevation 4,143.25. The present forecast indicates that the lake should not drop below 4,142.4 until mid July.

Question. Does the 1995 Operations Plan meet the downstream flow requirements for anadromous salmon stocks? How will those flow requirements impact the needs of the hydro facilities on the lower river?

Answer. The 1995 Operations Plan recognizes the needs of the downstream fishery. We do not expect adverse impacts to steelhead and salmon stocks as a result of the 1995 operations. Hydroelectric plants operated by PacificCorp will not be significantly affected by the operation plan. Normal operations for both river flow and hydropower are expected.

Umatilla Basin

As part of its new mission, the Bureau of Reclamation has identified the elimination of unauthorized water deliveries outside of project boundaries as a priority. One of the areas where the Bureau has been focusing its efforts has been the Umatilla Basin in Northeastern Oregon. The Bureau has been engaged in negotiations with the five irrigation districts in the Umatilla Basin to deliver water on a temporary basis until the long-term issue of how to deal with unauthorized out of boundary deliveries can be resolved.

Question. What is the status of these interim contracts with the five Umatilla Basin Irrigation Districts?

Answer. Hermiston Irrigation District and Reclamation have executed a 1995 interim one-year contract for water delivery to out-of-boundary lands. Stanfield Irrigation District is expected to execute its 1995 interim one-year contract soon. NEPA documentation was completed for these two contracts. The outcome for a Westland Irrigation District contract in 1995 is as yet unknown. The primary issue remaining to be resolved is the status of water rights for the out-of-boundary Teel Irrigation District lands and water rights for the instream flow mitigation water being provided under the 1995 interim contracts. West Extension Irrigation District has submitted its legal case on out-of-boundary issues to Reclamation for consideration. Reclamation will review their legal and factual points, determine the extent of any illegal deliveries in 1995, and bill the District for any illegal deliveries following the 1995 irrigation season.

Question. What is the status of the Environmental Impact Statement process now being pursued by the Bureau to evaluate the impacts of the out-of-boundary deliveries on a long-term basis? Does the Bureau follow a standard procedure for allocating the costs of this EIS? How does your agency plan on allocating the costs in the case of the Umatilla Basin EIS? Can the Bureau cover these costs with existing budget authority?

Answer. A provision in the 1995 interim contracts includes an agreement by the respective district to pay its share of return flow modeling

costs which will constitute the initial phase of the long-term NEPA analysis. This modeling will allow Reclamation to assess the level of environmental impact caused by the out-of-boundary deliveries and will allow Reclamation to determine what level of analysis, EA or EIS, is most appropriate for that level of impact.

Once modeling is completed the districts will be asked to fund the completion of the long-term NEPA analysis except in a few specific cases where extenuating surrounding circumstances exist. In some of those cases, Reclamation would pay the NEPA costs. Reclamation would require the districts to pay the long-term NEPA costs up front based on an agreed upon payment schedule. Reclamation should have sufficient budget authority to cover its costs.

Question. What is the status of the Umatilla Basin Project? Does the EIS relating to out-of-boundary deliveries pose any threats to the long-term viability of the Project?

Answer. The Umatilla Basin Project is progressing smoothly. We are currently working on specifications and construction contracts for the Phase II water exchange. This is the final phase of the Exchange Project. Although the interim contract negotiations have introduced some differences of opinion in completing exchanges under the Project, all parties have been able to work through those issues. We do not believe that the long-term NEPA for the out-of-boundary lands poses any significant threat to the viability of the Basin Project.

The Dalles Irrigation District Small Loan

I understand that the engineering estimates for The Dalles Irrigation District loan is about \$500,000 more than the original amount anticipated when the loan was developed.

Question. Do you anticipate any problems proceeding with the loan given the new estimate? Are there any other issues that could delay the loan?

Answer. Recently discovered geologic problems at the site have forced the District and its consultant to reevaluate construction of the proposed 17-acre-foot reregulating reservoir. It now appears that remedial work at the site to accommodate a 5-acre-foot steel tank being proposed as a replacement for the reservoir will increase the total project cost (the decrease in reserve storage should not affect the viability of the project). The District's consultant is currently preparing an estimate of the projected cost. Neither the District nor its consultant has approached Reclamation at this time seeking additional financing to offset this projected cost increase.

We anticipate that the project will proceed as planned with the substitution of the tank for the reservoir. We are unaware of any other issues that could delay the project further.

Question. Are sufficient funds available for transfer to the District so that the construction contract can be awarded as currently scheduled?

Answer. Sufficient funds are available for transfer to the District to initiate the work under this loan.

Question. Do you expect funding to be a problem with completing the loan as currently scheduled?

Answer. We are not currently aware of any funding problems that may prevent this loan from being completed as scheduled.

Question. If funding is a problem, what actions need to be taken to ensure that the loan proceeds without delay?

Answer. If project costs exceed the original estimate, the District could request an Escalation Loan.

Columbia River Basin Salmon

The Bureau is requesting \$15 million in FY 1996 for its Columbia and Snake River Salmon Recovery Project.

Question. Please provide a brief description of how the Bureau plans to utilize the funds in FY 1996.

Answer. Construction will continue on water conservation demonstration projects in the Lemhi and Yakima River basins. These facilities will allow improved water operations and enable water users to bypass flows during low flow conditions to provide additional flows for passage of salmon and steelhead.

Water acquisition contracts will continue to be executed with willing sellers. This is part of the storage buy-back measures to secure water for flow augmentation to aid migration of threatened and endangered salmon.

Environmental activities will continue which include a comprehensive Snake River review, tribal review, snail studies, and U.S. Fish and Wildlife Service and public involvement.

Construction of fish screen structures and ladders will continue as part of the fish protection measures to increase salmon migration survival.

Watershed demonstration projects in the John Day and Wallowa River basins in Oregon and the monitoring program with the United States Geological Survey will continue.

Question. What activities are being funded in the current fiscal year?

Answer. Fiscal year 1995 funds are being used to continue water acquisition, continue construction of water conservation demonstration projects which include ongoing work in the Lemhi River basin and award of a contract for construction of a reregulating reservoir in the Yakima River basin, environmental activities, and construction of fish passage and protective facilities.

Question. What difficulties and/or successes has the Bureau experienced in trying to acquire water from upstream water users in the basin? How much water has been acquired since 1991?

Answer. In Reclamation's experience, many water users have expressed a willingness to consider selling their entitlement to the Bureau of Reclamation.

Reclamation permanently reacquired some 6,500 acre-feet of storage space in American Falls Reservoirs in 1994, and other permanent acquisitions are pending. Additionally, Reclamation or the Bonneville Power Administration have rented water through Idaho rental pools each year except 1992.

The most severe constraint to acquiring water is proving to be time. Water acquisitions in the western United States occur, but prove to be complex and time consuming. The processes of setting value (appraisal), determining ownership (title), and negotiating acceptable agreements are complex. Reclamation is taking affirmative steps to address the problems by seeking to acquire appraisal and title insurance services from the private sector. The other important constraint is money. "Willingness to sell" may not result in an acquisition if agreement cannot be reached on price and other terms.

The amounts of water acquired through lease or purchase are as follows:

YEAR	TOTAL ACRE-FEET REQUIRED	ACRE FEET RENTED	ACRE FEET AVAILABLE FROM PROJECT <u>1/</u>	TOTAL ACRE FEET PROVIDED
1991	190,000	160,000	40,000	200,000
1992	427,000	0	90,000	<u>2/</u> 90,000
1993	427,000	100,000	324,000	424,000
1994	427,000	45,000	383,000	428,000
Total	1,471,000	305,000	837,000	1,142,000

1 Non-contracted space and power-head space (space in reservoir permanently reserved to increase power-head).

2/ Drought year. Augmentation volume not provided.

In addition to the above data, 6,518 ac-ft of space purchased in December 1994 for approximately \$1 million will be available in 1995 and beyond.

Question. How is the Grand Coulee project being operated this spring to assist the downstream passage of juvenile salmon? How will the changes in Grand Coulee's operations affect power revenues (i.e., how much will it cost) over the course of the year?

Answer. In accordance with the National Marine Fisheries Service's (NMFS) March 2, 1995 Biological Opinion, Grand Coulee Dam is being operated with the goal of having the reservoir as full as permitted by flood control requirements at the start of the migration season (April 20) and reaching full by the first of July. Prior to this Opinion, the April 20th elevation was

usually well below that required for flood control. Under the Opinion the reservoir now stores less streamflow during the April 20 - July 1 migration season and outflows are consequently higher. Reservoir releases will be made in July and August to augment flows for downstream salmon.

The impact of this operation on power revenues is a question that is more appropriately addressed by the Bonneville Power Administration. Total annual electrical generation may not be significantly affected by the operation for salmon, but revenues vary according to time of year, and may be affected. The operation under the Opinion generally limits Grand Coulee's power production during times of relatively high power value and increases power production during times of relatively low value.

QUESTIONS SUBMITTED BY SENATOR BURNS

IRRIGATION SYSTEMS IN MONTANA

Question. Many of our small Bureau of Reclamation irrigation systems were built by the government with the intent of turning them over to the users, the irrigators, when the cost of construction has largely been repaid. We have a number of these systems in Montana that are at various points in this process. Can you tell me, which systems in Montana, are in your view, likely to be able to take ownership of their systems?

Answer. All of the irrigation districts within the 14 Montana Reclamation projects listed below have been contacted about the possibility of title transfer of their distribution systems. All the districts expressed an interest in exploring this possibility to varying degrees. At this time it is premature to forecast which districts are likely to take ownership of their systems.

GRAND CANYON TRUST COOPERATIVE AGREEMENT

I am aware that the Bureau entered into a cooperative agreement with the Grand Canyon Trust for a study of the present and future water needs of the Colorado River Basin.

Question. What is the length of the agreement, and how much will it cost the Bureau?

Answer. The cooperative agreement between the Bureau of Reclamation and Grand Canyon Trust was for two years, fiscal years 1995 and 1996. The agreement will terminate on September 30, 1996, unless otherwise extended. Reclamation contributed \$100,000 in fiscal year 1995 and will contribute \$100,000 in fiscal year 1996.

Question. Is the agreement the result of a competitive solicitation? If not, how was it initiated?

Answer. Financial assistance agreements are not subject to competitive solicitation but are contingent upon funding and/or availability of staff for cost-sharing activities. Since it has been determined to be beneficial to the mission of the Bureau of Reclamation, authorization to enter into the agreement is granted under the Reclamation Act of 1902, and the Federal Grant and

Cooperative Agreement Act of 1977 (P.L. 95-224), as supplemented and amended, and other Acts and amendatory thereto.

Question. Please provide a list of all other cooperative agreements with non-Federal partners that the Bureau entered into within the past two years?

Answer. The following is a list of non-Federal partners with whom the Bureau has entered into cooperative agreements for \$50,000 or above within the past two years.

NON-FEDERAL AGREEMENT PARTNERS
LOWER COLORADO REGION

FY 1993

Hualapai Tribal Council	For water assessment and feasibility study for an endangered fish rearing facility on the Hualapai Reservation.	\$65,000
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FY 1994

National Audubon Society	For cost-shared activities of management and research for wildlife and particularly avian non-game species on public lands and waters administered by Reclamation.	\$76,000
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City of Phoenix/Arizona Game and Fish	Tres Rios Demonstration Project	\$80,000
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Arizona Historical Society	Roosevelt Dam Museum	\$297,000
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Metropolitan Water District	Water conservation efforts with municipal, industrial, and residential benefits. Multiple partners include Americorps and ExPERT.	\$1,000,000
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West/Central Basin	Water conservation efforts with Municipal Water District municipal, industrial, residential, and recycling benefits.	\$500,000
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Water use Assessment of Coachella Valley Water District and the Imperial Irrigation District.	Evaluation study to quantify beneficial/non-beneficial uses of irrigation practices.	\$140,000
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NON-FEDERAL COOPERATIVE AGREEMENT PARTNERS
PACIFIC NORTHWEST REGION

Idaho State Department of Water Resources	Emergency Drought Relief	\$2,000,000
Colville Confederated Tribes	Closure and monitoring of Brett Pit Industrial Landfill	\$190,000
Okanogan County, Washington	Construction of boat launch facilities at Conconcully Lake, Okanogan Project	\$72,500
Grant Soil and Water Conservation District	Planning activities for Water Conservation Demonstration Projects	\$52,000
Oregon Department of Water Resources	Oregon Contingency Plan and Program for Moving Water	\$65,000
Henry Hagg Lake/Scoggins Valley Park (Park)	Expansion of recreation facilities at Henry Hagg Lake/Scoggins Park	\$1,794,661
Idaho Fish & Game	Study to determine affects of new Minidoka Power Plant on fishery spillway.	\$150,000
Wallowa Soil and Water Conservation District	Planning Water Conservation Projects for benefits for anadromous fish.	\$75,000
Idaho Department of Fish & Game Region 5	Fish & Wildlife Enhancement	\$60,000
Idaho Department of Fish & Game Region 6	Fish & Wildlife Enhancement	\$270,000
City of Grand Coulee	Recreation and fish and wildlife enhancements, North Dam Park, Grand Coulee, Washington	\$300,000
Umatilla County	Monitoring and regulation of water under the Umatilla Act.	\$60,000
Montana Dept of Natural Resources	Flint Creek Basin Ground Water Conservation Study	\$50,000

NON-FEDERAL COOPERATIVE AGREEMENT PARTNERSHIP
UPPER COLORADO REGION

FY 1993

Mountain Fuel	Gas line relocation	\$728,000
NM State University	Bald Eagle study	\$43,000
NM Tech.	FWL, water quality study	\$100,000
Utah State University	Climatological, hydrologic research	\$50,000
Newton Water Users	Erosion control	\$50,000
NM Bureau of Mines	Groundwater recharge	\$25,000
Zuni Pueblo	Ethnohistorical study	\$150,000
Utah Division of Wildlife	Wildlife management	\$124,000
Utah Division of Wildlife	Flaming Gorge studies	\$60,000
Colo. State University	Ecology study	\$60,000
Central Utah Wtr District	Provo River study	\$378,000
Utah Division of Wildlife	Modify fish station	\$60,000
Utah Dept. of Transportation	Big game fence	\$813,000

FY 1994

NM Tech.	FWL, water quality study	\$100,000
Utah State University	Climatological, hydrologic research	\$50,000
NM Bureau of Mines	Groundwater recharge	\$25,000
Zuni Pueblo	Ethnohistorical study	\$150,000
Utah Division of Wildlife	Flaming Gorge studies	\$60,000
Colo. State University	Ecology study	\$60,000
Utah Division of Wildlife	Modify fish station	\$60,000
Weber Basin Water Council	Watershed management	\$60,000
Utah Division. of Wildlife	Drought assistance	\$200,000
So. Ute Indians	Environmental studies	\$170,000
Central Utah Wtr District	Provo River studies	\$2,000,000
Utah State University	Watershed management	\$270,000
So. Paiute Tribes	Ethnohistorical study	\$160,000
Utah Division of Wildlife	Drought assistance	\$70,000
Wasatch County	Sewer system	\$100,000
Provo City	Fish weir	\$99,000
Ute Mtn. Ute Tribe	Environmental studies	\$400,000
New Mex. Museum	Archaeological collection	\$101,000
AZ State University	Genetic studies	\$90,000
Utah State University	Water District facilities	\$150,000
NM Parks	Safety/handicap	\$100,000
Central Utah Wtr District	Environmental studies	\$216,000
NM Game/Fish	Ichthyofaunal studies	\$100,000
New Mex. Museum	Archival program	\$75,000
Bear River Commission	Water quality investigation	\$40,000
El Paso Water Utilities	Aquifer study	\$60,000
Navajo Communications	Telephone relocation	\$20,000
Colo. State. Parks	Recreation rehabilitation	\$1,800,000

City of Crag, CO	Fish ponds	\$100,000
Pine River District	Handicap access	\$60,000
Town of Crawford, CO	Water system	\$400,000
Central Utah Wtr District	Lake rehabilitation	\$1,300,000
Page, AZ	Waterline	\$100,000
NM Game/Fish	Waterfowl farm	\$829,000
Utah Wtr. Conservation Forum	Water Management grant	\$100,000
University of Utah	Archeological inventory	\$52,000
Colo. Division of Wildlife	Wetlands O&M	\$60,000
Totals		\$12,428,000

**NON-FEDERAL COOPERATIVE AGREEMENT PARTNERS
GREAT PLAINS REGION**

1993

Oklahoma Tourism and Recreation Department	McGee Creek resource management plan and draft environmental assessment	\$100,000
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GDC and North Dakota Parks and Tourism	Development of a Recreation Facility with the Devils Lake State Park System	\$175,000
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1994

Cascade County Conservation District	Grade Control Demonstration Project in the Muddy Creek Channel	\$50,000
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State of Kansas	Cleanup, repair, replacement of recreation facilities damaged by 1993 floods	\$175,000
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Estes Valley Recreation and Park	Update Resource Management Plan, design development, and construction at Lake Estes, East Portal, Mary's Lake, and Common Point	\$50,000
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Renville County Board/Garrison Diversion Conservancy District	Development of Mouse River Park Public Recreation Area	\$50,000
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Kansas Department of Wildlife and Parks	Construction of Recreational Facilities Cheney State Park, Cheney Reservoir	\$60,000
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University of North Dakota	Mitigation and and Stabilization Activities along the James River, ND	\$50,000
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Oklahoma Tourism	Design and construction of recreational facilities - Quartz Mtn State Park, Altus Reservoir, W.C. Austin Project.	\$60,000
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NON-FEDERAL COOPERATIVE AGREEMENT PARTNERS
MID PACIFIC REGION

1993

State of California Department of Water Resources	Technical assistance for evaluation of water district conservation plans. \$513,000
San Luis & Delta-Mendota Water Authority	Operation and maintenance of the Delta Mendota Canal and related Delta Division facilities. \$2,566,313
Hoopa Valley Tribal Council Fisheries Department	Development of a comprehensive, integrated plan to balance hatchery mitigation goals and fisheries management activities with restoration of anadromous native fish stock production in the Klamath-Trinity River Basin. \$780,000
State of California Dept of Forestry & Fire Protection	Fire prevention and suppression services at Auburn Dam and Reservoir \$173,563
Ducks Unlimited, Inc.	Ricelands/Westlands Conjunctive Use Study \$293,000
State Water Resources Control Board	Process actions relative to the water right of Reclamation \$100,000
National Fish and Wildlife Board	Activities relating to the Klamath Basin Conservation, enhancement, restoration and balanced management of fish and wildlife and plants and the habitats they depend on. \$200,000
1994	
San Benito County Board of Supervisors	Develop, administer, operate and maintain recreation at San Justo Reservoir. \$150,000
Biggs-West Gridley Water District	Provide wheeling a water supply to Gray Lodge \$165,256
Oregon State University	Year class assessment and juvenile ecology of Shortnose and Lost River Suckers. \$167,377
San Luis Canal Company	Delivery of water to Los Banos Wildlife Management Area. \$105,469

Colusa County Sheriff's Office	Law enforcement services at East Park Reservoir.	\$47,900
Bay Area Dischargers Association	Cooperative agreement between Reclamation and BADA to facilitate completion of the first phase of the feasibility study authorized by Public Law 102-575.	\$265,000
Buena Vista Water Storage District	Provide water for the Kern National Wildlife Refuge.	\$82,875
Regents of the University of California, Riverside	Research study from the University of California for the field laboratory studies of microbial treatment of soil at the former Kesterson Reservoir site.	\$183,454
Trinity County Planning Department	Trinity River Basin Fish and Wildlife Grant	\$190,000
The Klamath Tribes Natural Resources Department	Provide funds for the Upper Klamath Lake and Agency Lakes Water Quality Assessment and Inflow Nutrient Budget and Endangered Species Restoration Program Support.	\$113,835

GRAND CANYON TRUST COOPERATIVE AGREEMENT NOTIFICATION

I am aware that the Bureau entered into a cooperative agreement with the Grand Canyon Trust for a study of the present and future water needs of the Colorado River Basin.

Question. Were the Committees on Appropriations notified that the Bureau was entering into the agreement?

Answer. No, but notification was not required.

Question. From which program or project within the Bureau's budget will the funding for this agreement come? Will it be repaid?

Answer. This agreement is being funded under the Endangered Species Conservation/Recovery program. There is no repayment stipulation in the cooperative agreement.

LIST OF IRRIGATION SYSTEMS IN MONTANA

Question. Can you provide me with a list of all the Bureau of Reclamation Irrigation systems in Montana, their size, number of users, and what their current financial situation is?

Answer. The list you have requested follows:

IRRIGATION DISTRICT	IRRIGABLE ACRES/SIZE (Approx*)	No. OF USERS (Population*)	CURRENT	
			Status	Balance
Buffalo Rapids	22,719	1,346	Current	\$460,288
Lower Yellowstone Project	52,133	1,681	Paid Off	\$ -0-
Milk River Project	120,878	1,980	Current	\$6,766,851 **
Sun River Project	91,010	2,178	Paid Off	\$ -0-
Crow Creek Unit, P-SMBP	5,018	59	Current	\$3,242,191 **
East Bench Unit, P-SMBP	49,804	733	Current	\$17,497,349 **
Helena Valley Unit, P-SMBP	15,608	1,925	Current	\$17,503,327 **
Huntley Project	30,304	925	Current	\$244,667
Buford-Trenton Project	10,641	165	Paid Off	\$ -0-
Intake Project	823	13	Paid Off	\$ -0-
Savage Unit, P-SMBP	2,186	71	Current	\$867,922 **
Bitter Root Project	16,000	856	Current	\$232,865
Frenchtown Project	5,021	307	Paid Off	\$ -0-
Missoula Valley Project	780	2	Paid Off	\$ -0-

* Data from Summary Statistics Water, Land & Related Data, 1991, USDOJ, BOR.

** Balance Owed as of September 30, 1993, includes all reimbursable project costs whether or not assigned to a district for repayment, i.e., the Savage Irrigation District's remaining balance is \$3,750 of the total \$867,922 remaining.

COST TO REPAIR DELIVERY SYSTEMS

Question. Some of these irrigation systems, as well as those built by the Bureau of Indian Affairs, are in a sad state of disrepair because although the users pay fees for the use of the water, the government has not upheld its end of the bargain and kept the systems in good working order. Can you provide me with estimates of the cost of bringing each of those systems up to a level of repair that would at least allow for the delivery of the water the users pay for?

Answer. In all cases of Reclamation projects in Montana, the irrigation districts are responsible for the operation and maintenance of the distribution works. Reclamation irrigation systems generally consist of water supply works (dam, reservoir, and related facilities) and distribution works (canals, laterals, and drainage facilities). Normally, Reclamation operates and maintains the water supply facilities while the district operates and maintains the distribution works.

The user fees paid by the irrigators are for repayment of their share of the capital costs of the project (which includes construction repayment) and for funding operation and maintenance expenses within their organization or Reclamation if Reclamation performs the operation and maintenance. Any repair on the systems would be repaid by additional user fees. Maintenance of the irrigation distribution systems to ensure they are kept in good working order and capable of delivering water is the districts' responsibility.

For the Bureau of Indian Affairs irrigation projects, the monies paid by water users are to reimburse the Federal government for the operation and maintenance of the project facilities, both water supply and distribution works. The actual water is available without charge due to historical or other legal appropriative right. The only other assessment charged water users is the amortized charge for repayment to the Federal government for project construction costs.

Operation and maintenance fees assessed in the past were set too low due to local economic pressures. Supplemental funds were not provided, since they are reimbursable to the Treasury. Therefore, water user fees were adequate only to perform the basic operational requirements to deliver water. Proper maintenance and rehabilitative activities were not performed, allowing the projects to slowly deteriorate until many have reached the end of their design life.

The Bureau of Indian Affairs provides the following estimates to bring the Montana projects back to full operating efficiency. These estimates do not include betterment to update the facilities to modern technological standards:

Ft. Belknap	\$ 6,000,000
Ft. Peck	8,000,000
Blackfeet	9,000,000
Flathead	18,775,000
Crow	15,000,000

HUNGRY HORSE SELECTIVE WITHDRAWAL

Question. One of the real successes of meeting the conflicting needs of the Pacific salmon and Montana's own bull trout has been the installation of the selective control device at Hungry Horse. Does the Bureau have other ideas that

it could share with this committee that, in its view, would serve to further mitigate the conflict between the problem of meeting the perceived need of additional water downstream on the Columbia and Snake rivers and the needs of upstream users of these reservoirs such as recreation, municipal, irrigation and wildlife?

Answer. Recently concluded consultations on operation of the Federal Columbia River Power system, including Hungry Horse and Libby, among the five Federal agencies (Bureau of Reclamation, Corps of Engineers, Bonneville Power Administration, National Marine Fisheries Service, and Fish and Wildlife Service) involved lengthy consultation with affected parties, including Montana and upstream tribes. Montana's interest was to assure that the resident fishery in Hungry Horse was not degraded by operations intended to help salmon downstream. The ensuing March 2, 1995, biological opinion of the National Marine Fisheries Service changed the protocol for releasing water from Hungry Horse Dam. Henceforth, flood control and anadromous fish needs shall govern reservoir releases, and the maximum allowable downstream reservoir draft is expected to be 20 feet from full elevation. Previously, power needs imposed significant demands on the reservoir, and summer drafts as deep as 60-80 feet from full often resulted. Maximum winter drafts will also be significantly reduced to improve the likelihood of reservoir refill in the spring. The protocol change should improve conditions for resident fish through these restrictions on reservoir draft.

TRANSFER OF OPERATION AND MAINTENANCE OF YELLOWTAIL DAM

Question. It is my understanding that the Crow tribe are in preliminary discussions concerning a proposal to take over the maintenance of Yellowtail Dam in Southeastern Montana. Can you give me an update on those discussions and some indication what might happen next?

Answer. The Bureau of Reclamation is exploring the possibility of transferring the on-site operation and maintenance of Yellowtail Dam and powerplant to the Crow Tribe. Reservoir and river operations, as well as power scheduling, would continue to be performed by Reclamation. Our discussions with the Crow Tribe continue to be preliminary in nature, and we expect talks to continue on a regular basis.

TRANSFER OF OPERATIONS

Question. Can you give me a list of other Bureau of Reclamation facilities where the Bureau is engaged in discussions for the possible transfer of operations and maintenance with other tribes throughout the United States under the provisions of Public Law 103-413?

Answer. Discussions are currently under way to transfer operation and maintenance of Newlands Project, Nevada, facilities located on the Fallon Paiute-Shoshone Indian Reservation to the Tribe. The proposed transfer involves irrigation and drainage facilities serving a maximum of 5,480 acres. The

discussions are being conducted through the Bureau of Indian Affairs which currently pays the operation and maintenance costs allocated to the Fallon Reservation.

QUESTIONS SUBMITTED BY SENATOR KERREY

NEBRASKA CONTRACT RENEWALS

Question. First, I would like to personally thank you Mr. Beard, as would the Nebraska Irrigation Districts, for your assistance in helping with contract renewal. I appreciate your personal involvement in this sometimes confusing and cumbersome process. Can you tell me, from your perspective, how the contract renewal process is progressing? And can you explain the need to prepare Basinwide studies?

Answer. The contract renewal process is progressing very positively. Over 900 public and organizational comments were gathered that address a wide range of interests and concerns in the Republican River Basin. Reclamation is studying these issues to assist in identifying and developing resource management goals and objectives within the Basin. Environmental and economic data collection, as well as hydrologic studies, are also in progress. These activities will ultimately contribute to an integrated Republican River Resource Management Assessment and comprehensive Environmental Impact Statement which will provide the required National Environmental Policy Act compliance for the renewal of the water service contracts.

Changes in surface water supplies and the need to renew water service contracts for five irrigation districts in the Republican River Basin have made it necessary to look at future demands within the Basin. Because the renewals involve multiple contracts and reservoirs, a Resource Management Assessment will be used to inventory water resources, evaluate their varied uses and interrelationships within the Basin, and establish basin-wide goals and objectives. Establishing resource management goals in the Basin and eliciting input from the public will allow development of operational and resource management goals and objectives which take into account broad interests in the Basin. This is consistent with Reclamations ecosystem-based environmental approach to assess the impacts of Federal actions such as water service contract renewals and to explore the opportunities for environmental and resource management in connection with such actions.

RECLAMATION SAFETY OF DAMS COST SHARING LAKE ALICE DAM

Question. Do you think that the Bureau should bear the costs for repairing dam safety design deficiencies in Bureau of Reclamation dams? We are currently waiting on a decision from the Bureau concerning a problem with dam safety at Lake Alice. I would like to hear your perspective on how current policies for dam safety are addressed.

Answer. The 1984 amendment to the Reclamation Safety of Dams Act - Public Law 98-404 (The Act) requires that fifteen percent of dam safety modification costs be allocated to the authorized project purposes. On

December 2, 1993, Reclamation revised the Safety of Dams repayment policy to require that reimbursable modification costs be allocated only to reimbursable purposes of the project. This will ensure that primary project beneficiaries are responsible for repaying an equitable share of the costs necessary to ensure the continued safe operation of project facilities. Therefore, in accordance with the Safety of Dams Act, as amended, and as reflected in Reclamation's policy, Reclamation bears 85 percent of the cost of Safety of Dams modifications.

The Safety of Dams Act defines qualifying dam safety deficiencies requiring modifications as those that cause a public safety risk resulting from new hydrologic or seismic data or changes in state-of-the-art criteria. The deficiency associated with Lake Alice results from changes in state-of-the-art criteria related to internal erosion of the dam and foundation due to uncontrolled seepage.

The seepage related deficiency was first noted in the fall of 1980. In the spring of 1981, Reclamation designed a filter berm which was constructed and paid for by the Pathfinder Irrigation District. Subsequent evaluation of the performance of the berm indicated additional measures will be necessary to fully address the seepage deficiency. A filtered toe drain is proposed to be added to the berm to completely address the deficiency.

The Pathfinder Irrigation District will be required to share in 15 percent of the cost of the toe drain. However, Reclamation considers this work a continuation of the work performed in 1981. As such, the District has been granted credit for its costs incurred related to the filter berm installed in 1981.

CONCLUSION OF HEARINGS

Senator DOMENICI. You make sure you are willing to say you can do more with less. Thank you very much.

We stand in recess.

[Whereupon, at 4:32 p.m., Tuesday, May 2, the hearings were concluded, and the subcommittee was recessed, to reconvene subject to the call of the Chair.]

Material Submitted Subsequent to Conclusion of Hearings

[CLERK'S NOTE.—Public witness testimony was unable to be heard before the subcommittee, but the statements of the witnesses will be made a part of the record.

[The statements follow:]

NORTHEAST WATER RESOURCE DEVELOPMENT PROJECTS

PREPARED STATEMENT OF THE MARITIME ADVISORY COUNCIL, NEW JERSEY DEPARTMENT OF COMMERCE AND ECONOMIC DEVELOPMENT

Mr. Chairman and Members of the Subcommittee, it is a pleasure to appear before you today on appropriations of great importance to New Jersey and our residents. I am Joseph T. Grossi, Executive Director of the New Jersey Department of Commerce and Economic Development's Maritime Advisory Council. Accompanying me today is Bernard J. Moore, Administrator, Division of Engineering and Construction, of the State Department of Environmental Protection. We are here today to express our support for the Federal Budget Recommendations and to acknowledge our appreciation for past years' appropriations. However, as we outline our recommendations for Fiscal Year 1996 funding of Civil Works Projects, we believe a number of projects require mention and additional funding for seven projects is also warranted. Those projects requiring additional funding (denoted below by an asterisk) impact not only New Jersey but our neighboring states of Delaware, Pennsylvania and New York. Our requests total an additional \$7,525,000 and are necessary to advance and continue projects and provide for studies to develop solutions to the dredged material management predicament currently impacting port operations.

As you know, New Jersey is moving ahead in a partnership with the Federal government as outlined in the Water Resources Development Act of 1986. To enable the continuation of this partnership, we request that Congress reject the Administration's proposed policy changes and thereby allow the U.S. Army Corps of Engineers long standing commitment to civil works improvement projects to continue.

The following projects summary and the appended project description booklet will provide you with a clearer understanding of our state's unique needs. We ask that you carefully consider our requests for funding of these projects in FY'96. (Charts summarizing our recommendations are on pages 2 and 3 of this testimony.)

NAVIGATION* Arthur Kill Channel, Howland Hook Marine Terminal, NY and NJ (PE&D)

This project includes deepening the existing 35 ft. channel to 41 ft. from its confluence with the Kill Van Kull Channel to the Howland Hook Marine Terminal in New York and the Tosco Oil Terminal in New Jersey. We wish to support the request by the Port Authority of New York and New Jersey that \$800,000 is appropriated to continue and accelerate the completion of the PE&D phase in FY'96.

Delaware River at Camden, NJ (O&M)

This project is located adjacent to the east channel edge of the Delaware River project at Camden Marine and Beckett Street Terminals in Camden, New Jersey. We are pleased to see this project included in this year's Budget Request and wish to express our support for a Fiscal Year 1996 appropriation of \$850,000 for the Operation and Maintenance of this channel.

Delaware River, Philadelphia to the Sea, PA, NJ and DE (O&M)

The existing project provides for a nearly 100-mile channel from Camden, New Jersey and Philadelphia, Pennsylvania to deepwater in Delaware Bay, and six anchorage areas. The FY'96 Budget Request provides for much needed continued maintenance dredging throughout the project length. We are pleased to see \$18,157,000 included in the FY'96 Budget Request for this critically important operation and maintenance channel project. Port facilities in three states benefit from this project.

Delaware River Main Channel, NJ, PA and DE (PE&D)

The project extends over 100 miles from deepwater in the Delaware Bay to the Ports of Philadelphia, Pennsylvania and Camden, New Jersey. Fiscal Year 1996 funds will be used to continue PE&D, environmental and economic studies, complete the ship simulation modeling efforts and initiate preparation of the draft Design Memorandum. We wish to express support for the FY'96 Budget Request of \$780,000 to continue this PE&D effort.

*Kill Van Kull and Newark Bay Channel, NY and NJ (Construction)

The present 40 ft. channel precludes modern ocean voyage container ships from full loading. Substantially increased shipping costs, if allowed to continue, will discourage fleets with larger draft vessels from utilizing these facilities. The Corps of Engineers is now developing the cost estimates for Phase II of the authorized project, the deepening of the channel to 45 feet. Based upon an early estimate of the project, the Port Authority of New York and New Jersey is requesting that \$2 million is added in FY'96 to advance construction.

**SUMMARY OF NEW JERSEY
FEDERAL CIVIL WORKS APPROPRIATIONS
FISCAL YEAR 1996**

PROJECT	PRESIDENT'S BUDGET REQUEST	PROJECT SPONSOR RECOMMENDATION	DIFFERENCE
<u>NAVIGATION</u>			
ARTHUR KILL CHANNEL, HOWLAND HOOK MARINE TERMINAL, NY & NJ (PE&D)	400,000	800,000	400,000
DELAWARE RIVER MAIN CHANNEL, PA, NJ & DE (PE&D)	780,000	780,000	-0-
KILL VAN KULL & NEWARK BAY CHANNELS, NY & NJ (CONSTRUCTION)	-0-	2,000,000	2,000,000
NY HARBOR & ADJACENT CHANNELS, CLAREMONT CHANNEL, NJ (PE&D)	400,000	400,000	-0-
NY HARBOR & ADJACENT CHANNELS, PORT JERSEY CHANNEL, NJ (CONSTRUCTION)	550,000	550,000	-0-
NY HARBOR ANCHORAGE AREAS, NY & NJ (STUDY)	100,000	100,000	-0-
NY HARBOR & ADJACENT CHANNELS, RARITAN BAY ANCHORAGE, NY & NJ (STUDY)	100,000	100,000	-0-
NY HARBOR COLLECTION & REMOVAL OF DRIFT, NY & NJ (CONSTRUCTION)	100,000	100,000	-0-
SALEM RIVER, NJ (CONSTRUCTION)	3,576,000	3,576,000	-0-
W R.D.A 92, SECTION 326, NY BIGHT HYDRO-ENVIRONMENTAL STUDY (STUDY)	-0-	1,000,000	1,000,000
W.R.D.A. 52, SECTION 405, SEDIMENTS DECONTAMINATION TECHNOLOGIES (STUDY)	-0-	3,000,000	3,000,000
<i>CATEGORY SUBTOTAL</i>	56,006,000	512,406,000	56,400,000
<u>FLOOD CONTROL/FLOOD DAMAGE PROTECTION</u>			
LOWER SADDLE RIVER, NJ (PE&D)	963,000	963,000	-0-
MOLLY ANN'S BROOK AT HALEDON, PROSPECT PARK AND PATERSON, NJ (CONSTRUCTION)	3,750,000	3,750,000	-0-
RAMAPO RIVER AT OAKLAND, NJ (PE&D)	70,000	70,000	-0-
RARITAN RIVER BASIN, GREEN BROOK SUB-BASIN, NJ (CONSTRUCTION)	3,600,000	3,600,000	-0-
RARITAN RIVER BASIN, SOUTH RIVER, NJ (STUDY)	25,000	300,000	275,000
STONY BROOK, PRINCETON, NJ (STUDY)	250,000	250,000	-0-
<i>CATEGORY SUBTOTAL</i>	58,658,000	58,933,000	5275,000
<u>PLANNING ASSISTANCE</u>			
SECTION 22, P.L. 93-251 (STUDY)	-0-	300,000	300,000
<i>CATEGORY SUBTOTAL</i>	-0-	300,000	300,000
<u>SHORE PROTECTION/BEACH EROSION</u>			
BARNEGAT INLET TO LITTLE EGG INLET, NJ (STUDY)	-0-	550,000	550,000
BRIGANTINE INLET TO GREAT EGG HARBOR, NJ (STUDY)	115,000	115,000	-0-
DELAWARE BAY COASTLINE, DE & NJ (STUDY)	880,000	880,000	-0-
GREAT EGG INLET TO TOWNSEND INLET, NJ (STUDY)	290,000	290,000	-0-
LOWER CAPE MAY MEADOWS, CAPE MAY POINT, NJ (STUDY)	350,000	350,000	-0-
MANASQUAN INLET TO BARNEGAT INLET, NJ (STUDY)	290,000	290,000	-0-
RARITAN BAY & SANDY HOOK BAY, NJ (STUDY)	620,000	620,000	-0-

PROJECT	PRESIDENT'S BUDGET REQUEST	PROJECT SPONSOR RECOMMENDATION	DIFFERENCE
RARITAN BAY & SANDY HOOK BAY, CLIFFWOOD BEACH, NJ (PE&D)	52,000	52,000	-0-
SANDY HOOK TO BARNEGAT INLET, NJ (CONSTRUCTION)	15,700,000	15,700,000	-0-
TOWNSEND INLET TO CAPE MAY INLET, NJ (STUDY)	80,000	80,000	-0-
<i>CATEGORY SUBTOTAL</i>	\$18,377,000	\$18,927,000	\$550,000
OPERATION AND MAINTENANCE			
BARNEGAT INLET, NJ (NAVIGATION)	1,455,000	1,455,000	-0-
CHEESEQUAKE CREEK, NJ (NAVIGATION)	2,590,000	2,590,000	-0-
COLD SPRING INLET, NJ (SHORE PROTECTION)	485,000	485,000	-0-
DELAWARE RIVER AT CAMDEN, NJ (NAVIGATION)	850,000	850,000	-0-
DELAWARE RIVER, PHILADELPHIA TO THE SEA, NJ, PA & DE (NAVIGATION)	18,157,000	18,157,000	-0-
DELAWARE RIVER, PHILADELPHIA, PA TO TRENTON, NJ (NAVIGATION)	1,255,000	1,255,000	-0-
NJ INTRACOASTAL WATERWAY, NJ (NAVIGATION)	3,729,000	3,729,000	-0-
NEW YORK & NEW JERSEY CHANNELS, NJ (NAVIGATION)	205,000	205,000	-0-
NEW YORK HARBOR DRIFT REMOVAL, NY & NJ (NAVIGATION)	4,886,000	4,886,000	-0-
PROMPTON LAKE, PA (FLOOD CONTROL)	463,000	463,000	-0-
SALEM RIVER, NJ (NAVIGATION)	410,000	410,000	-0-
SHARK RIVER, NJ (NAVIGATION)	1,190,000	1,190,000	-0-
TOMS RIVER, NJ (NAVIGATION)	290,000	290,000	-0-
FRANCIS E. WALTER DAM, PA (FLOOD CONTROL)	675,000	675,000	-0-
<i>CATEGORY SUBTOTAL</i>	36,640,000	36,640,000	-0-
GRAND TOTAL	\$69,681,000	\$77,206,000	\$7,525,000

New York Harbor and Adjacent Channels, Claremont Channel, NJ (PE&D)

Claremont Channel is a non-federal channel with an average depth of 27 ft. While authorized for construction to a depth of 42 ft., the modified project will provide improved shipping economies with a 34 ft. deep channel. The principal users of the channel are scrap metal dealers exporting an average of 675,000 tons annually. We wish to support the FY'96 Budget Request of \$400,000 to complete the PE&D necessary to advance the construction phase of this improvement in FY'97.

New York Harbor and Adjacent Channels, Port Jersey Channel, NJ (Construction)

The Port Jersey Channel serves 13 shipping lines at the Global Marine Terminal. Annually, this facility handles 300 ships and over 100 barge arrivals. As a privately-owned terminal, Global pays nearly \$4 million in federal, state and local taxes annually. Presently, the initiation of Plans and Specifications and the final General Design Memorandum have been delayed by newly-adopted sediments testing criteria. Federal, state and local interests are working with the Corps of Engineers to address disposal issues on a harbor-wide basis. Therefore, we support the federal Budget Recommendation of \$550,000 for this project.

Salem River, NJ (Construction)

We wish to support the Fiscal Year 1996 Budget Request of \$3,576,000 to continue construction of deepening of the existing project to 16 ft. This facility is important to commerce and the economy of the entire South Jersey region, and presently ranks as the 38th largest export port in the United States. Over the last year, 100 ships have docked at the Port of Salem and the adjacent Mid-Atlantic Terminal, and additional trade routes are being developed in anticipation of the deepened channel. The State of New Jersey supports this project.

*W.R.D.A. of 1992, Section 326, NY Bight, Hydro-environmental Study (Study)

The Water Resources Development Act of 1992 authorizes \$1 million to provide data on movements and sources of water and sediment pollution. This project is needed to ensure the proper management of dredged material and its disposal, which is essential to the maintenance of the port's navigation projects. Therefore, we request that \$1 million is appropriated to advance the schedule for completion and provide this much needed tool for understanding sediment contaminant loading(s) for the management and disposal of dredged material from the New York/New Jersey Harbor.

*W.R.D.A. of 1992, Section 405, Sediments Decontamination Technologies (Study)

The Water Resources Development Act of 1992 authorized \$5 million for exploring methods of sediment decontamination and its practical use in managing dredged materials. This Corps and EPA effort has investigated a number of promising technologies, all of which require additional study. Continuation of this demonstration project is essential to channel maintenance and can serve as a model for use throughout the country. Port and regional environmental organizations are working together to promote this project. We request that \$3 million is appropriated to continue this vital program.

FLOOD CONTROL/FLOOD DAMAGE PROTECTIONLower Saddle River, NJ (PE&D)

Major flooding of the Saddle River affects over 2,500 recreational, commercial and industrial establishments. These project improvements would provide protection against a major flood and would eliminate over \$6 million of annual flood damage. We wish to express support for the FY'96 Budget Request of \$963,000 to continue the PE&D effort and advance this project to an FY'97 construction start.

Molly Ann's Brook, NJ (Construction)

Major flooding in recent years has adversely affected about 520 residential, commercial and industrial establishments in the 100-year flood plain. This project is authorized for construction under the W.R.D.A. of 1986. We wish to support the FY'96 Budget Request of \$3,750,000 to continue the construction phase of this project.

Raritan River Basin, Green Brook Sub-basin, NJ (Construction)

The Green Brook Sub-basin study area drains approximately 65 square miles of urban, suburban and industrialized area. In 1971, Hurricane Doria caused more than \$22 million in damage, while another major storm in 1973 contributed to six deaths and over \$25 million in damages. This project is needed to prevent loss of life and property, and we wish to support the Budget Request for this project in FY'96 of \$3,600,000 to advance the construction phase.

*Raritan River Basin, South River, NJ (Study)

Recent storms have caused extensive damage to residential and commercial properties in Sayreville and South River, New Jersey. The December 1992 storm caused damages of \$6,100,000 in the Basin. The funds requested for Fiscal Year 1996 will be used to complete the reconnaissance report, negotiate a feasibility cost-sharing agreement and develop an initial project management plan. We request that \$300,000 is appropriated in FY'96 to complete the reconnaissance report and advance this project into the feasibility phase.

PLANNING ASSISTANCE*Section 22, P.L. 93-251, Study, NJ (Study)

This project provides planning assistance to states to perform engineering evaluations of water resources problems. There are several planning projects for which we wish to request funds in FY'96 through this program. The funds requested for these proposed studies are \$ 300,000 and the State of New Jersey is prepared to financially participate.

SHORE PROTECTION/BEACH EROSION*Barnegat Inlet to Little Egg Harbor, NJ (Study)

This study will review the existing beach erosion/flood control projects to determine modifications necessary to provide protection. The funds requested for Fiscal Year 1996 will be used to initiate the feasibility phase. The State of New Jersey wishes to request that \$550,000 is appropriated for this project in Fiscal Year 1996. The Department of Environmental Protection has indicated their intent to cost share this study.

Delaware Bay Coastline, NJ & DE (Study)

The goal of this study is to provide information on the long-term shoreline changes which will serve as a basis for sound coastal planning. We wish to support an appropriation of \$880,000 in FY'96 for this study. New Jersey and Delaware have both expressed a willingness to cost-share this feasibility phase.

Manasquan Inlet to Barnegat Inlet, NJ (Study)

These studies are to investigate shore protection/flood control and water quality problems and to determine the effects of those conditions on the coastal environment. Fiscal Year 1996 funds will be used to complete the reconnaissance report, negotiate a feasibility cost-sharing agreement and develop an initial project management plan for the feasibility study phase. We wish to support the FY'96 Budget Request of \$290,000 for this study.

Raritan Bay and Sandy Hook Bay, NJ (Study)

This storm damage protection study is beneficial to coastal Bayshore communities not presently protected from storm inundation, wave attack and coastal erosion. We wish to support the FY'96 Budget Request of \$620,000 to continue the feasibility study phase, including engineering, economic and environmental investigations for Port Monmouth, Leonardo and Union Beach.

Sandy Hook to Barnegat Inlet, NJ (Construction)

Erosion and storms have seriously reduced the width of most beaches in the study area with exposure of the shore to storm damage. The State of New Jersey has stated its support for this project and we wish to support the FY'96 Budget Request of \$15,700,000 for this project. This funding will continue the construction phase of this improvement.

OPERATION AND MAINTENANCE

Under the category of Operation and Maintenance, we support the Administration's Budget Recommendation of \$36,640,000 for 14 civil works projects which impact New Jersey and our regional area. These projects are critical to the competitiveness of our ports, tourism industry, water supply, flood control and the safety of our citizens.

Mr. Chairman, we appreciate the past support of this subcommittee and ask you to carefully consider the requests made for funding in FY'96. These requests have been made with a special eye toward the most efficient use of both Federal and State funds. In closing, on half of New Jersey I wish to thank you for the opportunity to appear before this Subcommittee.

March 23, 1995

Dear Members of the United States Congress:

New Jersey relies heavily on waterfront and coastal commerce to maintain its healthy economy. New Jersey's deepdraft commercial waterways handle in excess a quarter billion tons of cargo a year, producing more than \$1 billion in customs revenue for the Federal Government. In addition to our ports, our inland waterways and rivers are equally important for our commerce and recreation. We need the Corps of Engineer's participation in maintenance of these channels to ensure navigational safety and to accommodate today's larger vessels.

In New Jersey, shore protection and flood control projects are critically important to the economy of our state. They provide protection to the infrastructure and reduce damages from coastal storms. Small flood control projects are also important to the economic base of rural and urban areas which we are trying to protect.

The Maritime Advisory Council of New Jersey supports these important projects and has given careful review to capital improvements in navigation, flood control, shore protection and water supply efforts. We ask that you carefully consider our requests for funding in FY'96. New Jersey is moving ahead in a partnership with the Federal Government as outlined in the Water Resources Development Act of 1986. To enable the continuation of this partnership, we request that Congress reject the administration's proposed policy changes and thereby allow the U.S. Army Corps of Engineers long standing commitment to civil works improvement projects to continue.

Sincerely,

JOHN L. BUZZI

John L. Buzzi, Ph.D., P.E.
Chairman
Maritime Advisory Council
of New Jersey

*SUMMARY OF NEW JERSEY
FEDERAL CIVIL WORKS APPROPRIATIONS
FISCAL YEAR 1996*

PROJECT DESCRIPTION	PROJECT SPONSOR RECOMMENDATION	PAGE
<u>NAVIGATION</u>		
ARTHUR KILL CHANNEL, HOWLAND HOOK MARINE TERMINAL, NY & NJ (PE&D)	800,000	1
DELAWARE RIVER MAIN CHANNEL, PA, NJ & DE (PE&D)	780,000	3
KILL VAN KULL & NEWARK BAY CHANNELS, NY & NJ (CONSTRUCTION)	2,000,000	5
NY HARBOR & ADJACENT CHANNELS, CLAREMONT CHANNEL, NJ (PE&D)	400,000	7
NY HARBOR & ADJACENT CHANNELS, PORT JERSEY CHANNEL, NJ (CONSTRUCTION)	550,000	9
NY HARBOR & ADJACENT CHANNELS, RARITAN BAY ANCHORAGE, NY & NJ (STUDY)	100,000	11
NY HARBOR ANCHORAGE AREAS, NY (STUDY)	100,000	13
NY HARBOR COLLECTION & REMOVAL OF DRIFT, NY & NJ (CONSTRUCTION)	100,000	15
SALEM RIVER, NJ (CONSTRUCTION)	3,576,000	17
WATER RESOURCES DEVELOPMENT ACT OF 1992, SECTION 326, NY BIGHT, HYDRO-ENVIRONMENTAL STUDY (STUDY)	1,000,000	19
WATER RESOURCES DEVELOPMENT ACT OF 1992, SECTION 405, DEMONSTRATION PROJECT (STUDY)	3,000,000	21
CATEGORY SUBTOTAL	<u>\$12,406,000</u>	
<u>FLOOD CONTROL/FLOOD DAMAGE PROTECTION</u>		
LOWER SADDLE RIVER, NJ (PE&D)	963,000	23
MOLLY ANN'S BROOK AT HALEDON, PROSPECT PARK & PATERSON, NJ (CONSTRUCTION)	3,750,000	25
RAMAPO RIVER AT OAKLAND, NJ (CONSTRUCTION)	70,000	27
RARITAN RIVER BASIN, GREEN BROOK SUB-BASIN, NJ (PE&D)	3,600,000	29
RARITAN RIVER BASIN, SOUTH RIVER, NJ (STUDY)	300,000	31
STONY BROOK, PRINCETON TOWNSHIP, NJ (STUDY)	250,000	33
CATEGORY SUBTOTAL	<u>\$8,933,000</u>	
<u>SHORE PROTECTION/BEACH EROSION</u>		
BARNEGAT INLET TO LITTLE EGG INLET, NJ (STUDY)	550,000	35
BRIGANTINE INLET TO GREAT EGG HARBOR NJ (STUDY)	115,000	37
DELAWARE BAY COASTLINE, DE & NJ (STUDY)	880,000	39
GREAT EGG INLET TO TOWNSEND INLET, NJ (STUDY)	290,000	41
LOWER CAPE MAY MEADOWS, CAPE MAY POINT, NJ (STUDY)	350,000	43
MANASQUAN INLET TO BARNEGAT INLET, NJ (STUDY)	290,000	45
RARITAN BAY & SANDY HOOK BAY, NJ (STUDY)	620,000	47
RARITAN BAY & SANDY HOOK BAY, CLIFFWOOD BEACH, NJ (STUDY)	52,000	49
SANDY HOOK TO BARNEGAT INLET, NJ (CONSTRUCTION)	15,700,000	51
TOWNSEND INLET TO CAPE MAY INLET, NJ (STUDY)	80,000	53
CATEGORY SUBTOTAL	<u>\$18,927,000</u>	
<u>PLANNING ASSISTANCE</u>		
SECTION 22, P.L. 93-251 (STUDY)	300,000	55
CATEGORY SUBTOTAL	<u>\$300,000</u>	
<u>OPERATIONS AND MAINTENANCE</u>		
BARNEGAT INLET, NJ (NAVIGATION)	1,455,000	57
CHEESEQUAKE CREEK, NJ (NAVIGATION)	2,590,000	59
COLD SPRING INLET, NJ (NAVIGATION)	485,000	61
DELAWARE RIVER AT CAMDEN, NJ (NAVIGATION)	850,000	63
DELAWARE RIVER, PHILADELPHIA TO THE SEA, NJ, PA & DE (NAVIGATION)	18,157,000	65
DELAWARE RIVER, PHILADELPHIA, PA TO TRENTON, NJ (NAVIGATION)	1,255,000	67
NEW JERSEY INTRACOASTAL WATERWAY, NJ (NAVIGATION)	3,729,000	69

PROJECT DESCRIPTION	PROJECT SPONSOR RECOMMENDATION	PAGE
NEW YORK & NEW JERSEY CHANNELS, NY (NAVIGATION)	205,000	71
NEW YORK HARBOR, DRIFT REMOVAL, NY & NJ (NAVIGATION)	4,886,000	73
PROMPTON LAKE, PA (FLOOD CONTROL & WATER SUPPLY)	463,000	75
SALEM RIVER, NJ (NAVIGATION)	410,000	77
SHARK RIVER, NJ (NAVIGATION)	1,190,000	79
TOMS RIVER, NJ (NAVIGATION)	290,000	81
FRANCIS E WALTER DAM, PA (FLOOD CONTROL & WATER SUPPLY)	675,000	83
CATEGORY SUBTOTAL	<u>\$36,640,000</u>	
GRAND TOTAL	\$77,206,000	

NAVIGATION

ARTHUR KILL CHANNEL, HOWLAND HOOK, NY & NJ (PE&D)

DELAWARE RIVER, MAIN CHANNEL, NJ, PA & DE (PE&D)

KILL VAN KULL AND NEWARK BAY CHANNELS, NY & NJ (CONSTRUCTION)

NY HARBOR AND ADJACENT CHANNELS, CLAREMONT CHANNEL, NJ (PE&D)

NY HARBOR AND ADJACENT CHANNELS, PORT JERSEY CHANNEL, NJ
(CONSTRUCTION)

NY HARBOR AND ADJACENT CHANNELS, RARITAN BAY ANCHORAGE
AREAS, NY & NJ (STUDY)

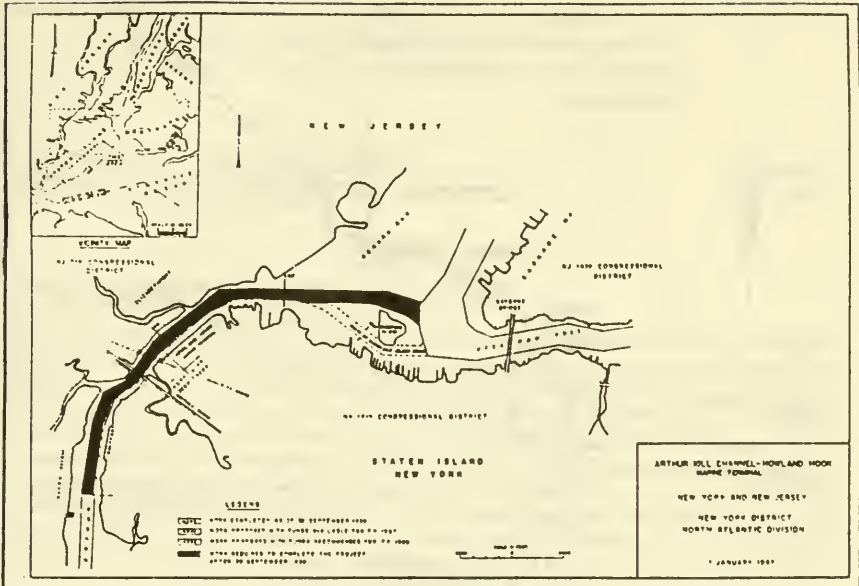
NY HARBOR ANCHORAGE AREAS (STUDY)

NY HARBOR COLLECTION AND REMOVAL OF DRIFT, NY & NJ (CONSTRUCTION)

SALEM RIVER, NJ (CONSTRUCTION)

W.R.D.A. OF 1992, SECTION 326, NY BIGHT, HYDRO-ENVIRONMENTAL STUDY
(STUDY)

W.R.D.A. OF 1992, SECTION 405, SEDIMENT DECONTAMINATION
TECHNOLOGIES STUDY (STUDY)



**ARTHUR KILL CHANNEL, HOWLAND HOOK MARINE TERMINAL
 NEW YORK AND NEW JERSEY
 (PRECONSTRUCTION ENGINEERING AND DESIGN)**

FY'96 PRESIDENT'S BUDGET REQUEST
PROJECT SPONSOR RECOMMENDATION

\$400,000
\$800,000

Project Description

The project area is located along the Arthur Kill Channel from its confluence with the Kill Van Kull Channel southwesterly to the Tosco Oil Terminal and Petroport facilities, in New Jersey and New York. This channel improvement will include deepening of the existing 35 ft. channel to 41 ft. from its confluence with the Kill Van Kull Channel to the Howland Hook Marine Terminal and 40 feet MLW from Howland Hook Marine Terminal to the Tosco Oil Terminal in New Jersey. Also included are selected widening and realignments of the channel in the interest of navigational safety. This project was authorized by the Water Resources Development Act of 1986.

Project Sponsor Recommendation

The Port Authority of New York and New Jersey is currently negotiating with a potential deep-draft tenant for the Howland Hook Marine Terminal and they anticipate a lease with a tenant in the near future. The Port Authority has indicated their support for the resumption/completion of the preconstruction engineering and design phase of this project.

We wish to support the Port Authority's request that \$400,000 be added to the President's Budget Request of \$400,000 for this preconstruction engineering and design effort. An appropriation of \$800,000 will allow the continuation and accelerate the completion of the PE&D phase in FY'96, including testing and sediment disposal studies.

PENNSYLVANIA



PHILADELPHIA
SCHUYLLER RIVER
MOUTH TO FORBES AVE.
MANTON'S HOOD
AND DOCKAGE
CANNON

17# DISPOSAL AREA
RACCON ISLAND DISPOSAL AREA
15 D DISPOSAL AREA

NEW JERSEY

REEDY POINT NORTH
DISPOSAL AREA

REEDY POINT SOUTH
DISPOSAL AREA

C & D CANAL
SABIN

MAIN DELAWARE RIVER CHANNEL

DELAWARE

SYBONIA RIVER
CONNORS RIVER

PORT WARDEN

DELAWARE BAY

WOLFLOUGH RIVER

MANORSE RIVER

CAPE MAY

ATLANTIC OCEAN

CAPE MERTON
LEWES

DELAWARE RIVER COMPREHENSIVE
NAVIGATION STUDY

PHILADELPHIA DISTRICT
CORPS OF ENGINEERS

**DELAWARE RIVER - MAIN CHANNEL
NEW JERSEY, PENNSYLVANIA AND DELAWARE
(PRECONSTRUCTION ENGINEERING AND DESIGN)**

**FY'96 PRESIDENT'S BUDGET REQUEST
PROJECT SPONSOR RECOMMENDATION**

**\$780,000
\$780,000**

Project Description

The Delaware River Navigation System includes six deep-draft navigation projects serving the Ports of Philadelphia, Pennsylvania; Camden, New Jersey; Trenton, New Jersey; and Wilmington, Delaware. These ports collectively transport more than 114 million tons of cargo annually, support nearly 100,000 jobs, and provide a much needed economic stimulus to the entire region. This system also serves naval vessels at the Philadelphia Naval Base. Current Delaware River Channel depths of 40 ft. are inadequate to efficiently handle existing bulk commodity vessels. A draft interim feasibility report recommends deepening the existing 40 ft. project to 45 ft., widening bends, and anchorage deepening of the 105 miles of channel length; approximately 85 miles will require dredging. (This is approximately 25 miles of additional dredging over the 60 miles of channel already dredged.) This project extends over 105 miles from deep water in Delaware Bay to the Ports of Philadelphia and Camden, New Jersey.

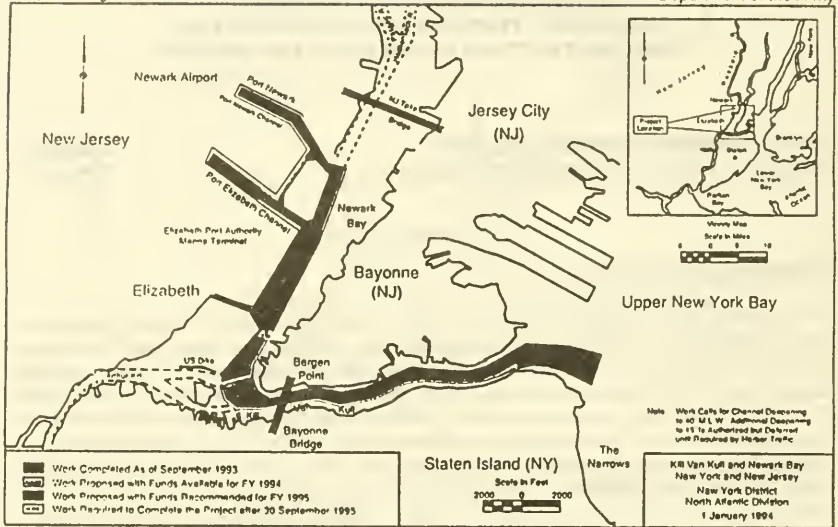
Project Sponsor Recommendation

Fiscal Year 1995 funds are being used to continue preconstruction and design engineering, environmental and economic studies, complete the ship simulation modeling efforts and initiate preparation of the draft Memorandum and appropriate NEPA documents. Fiscal Year 1996 funds will be used to complete the Design Memorandum and the appropriate NEPA documents, and initiate the preparation of plans and specifications. This preconstruction engineering and design effort is scheduled for completion in December 1996.

We wish to support the FY'96 Budget Request of \$780,000 to continue the preconstruction engineering and design phase of a 45 ft. deep main channel. Local interests are convinced of the merits of this project, and the Delaware River Port Authority has identified themselves as the sponsor for cost-sharing.

Corps of Engineers

Department of the Army



KILL VAN KULL AND NEWARK BAY CHANNEL NEW YORK AND NEW JERSEY (CONSTRUCTION)

**FY'96 PRESIDENT'S BUDGET REQUEST
PROJECT SPONSOR RECOMMENDATION**

**\$ -0-
\$ 2,000,000**

Project Description

This navigation project, as authorized, deepened the existing 35 ft. channels in the Kill Van Kull and Newark Bay to 40 ft. below mean low water (MLW). The project serves Port Newark/Elizabeth Marine Terminals with several widening and a turning basin. The work covers Staten Island, New York; and Jersey City, Bayonne, Elizabeth and Newark, New Jersey.

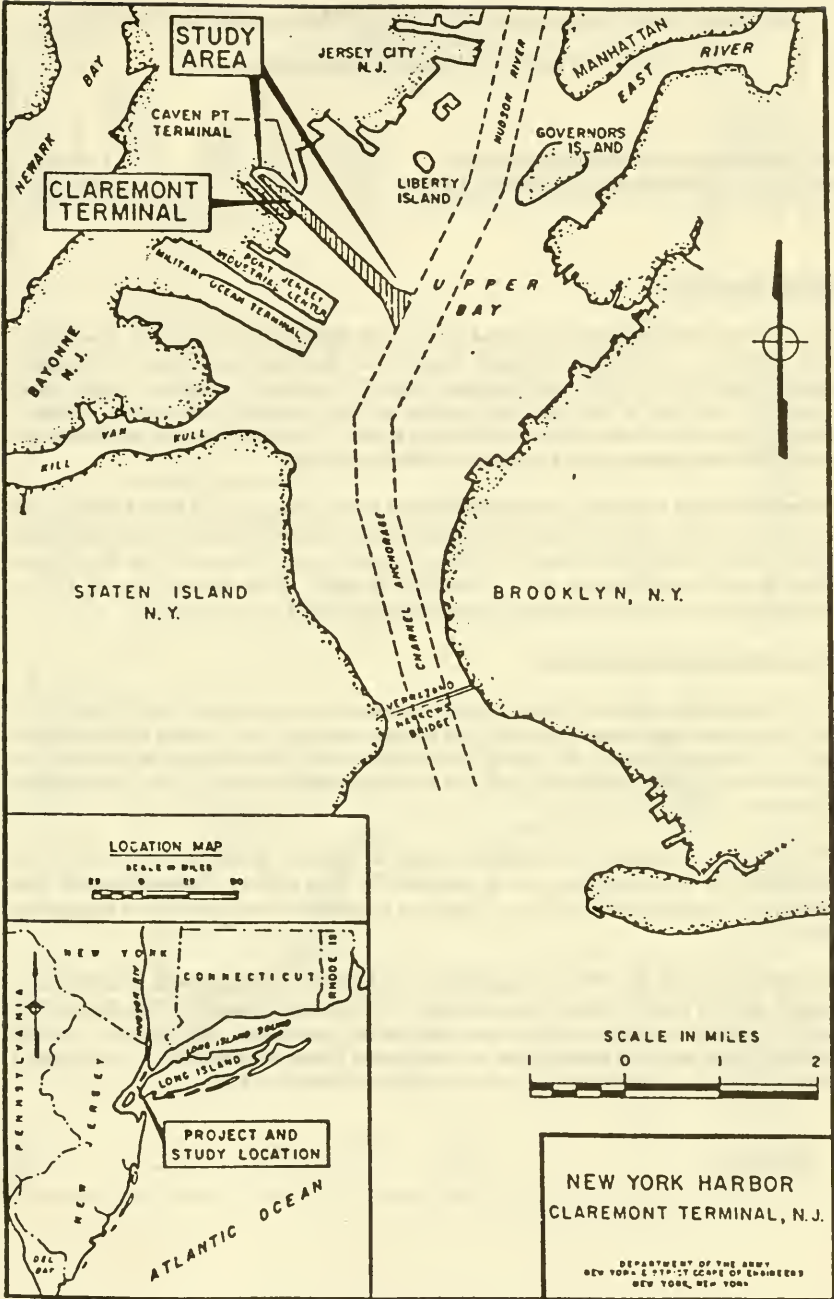
The Port Authority of New York and New Jersey, the local cooperating agency for this project, agreed to take construction in stages, with the first phase to 40 ft. This project benefits Port Newark/Elizabeth which, together, comprise the nation's largest container port.

The present 40 ft. channel precludes modern ocean voyage container ships from full loading. Substantially increased shipping costs, if allowed to continue, will discourage fleets with larger draft vessels from utilizing these facilities.

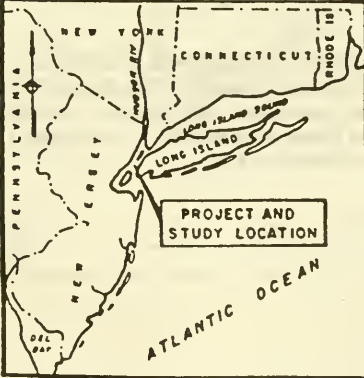
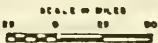
Project Sponsor Recommendation

The Kill Van Kull and Newark Bay Channels deepening project was authorized for construction in the Fiscal Year 1985 Supplemental Appropriations Act (P.L. 99-98) and the Water Resources Development Act of 1986 (P.L. 99-662). The Port Authority is providing local cooperation and the non-federal share of this project.

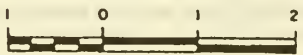
With the deepening of the channels to 40 ft. complete, the Corps of Engineers is now developing the cost estimates for Phase II of the authorized project, the deepening of the channel to 45 feet. Based upon an early estimate of the project and schedule, the Port Authority of New York & New Jersey is requesting that \$ 2 million be added in FY'96 to advance the Phase II construction of this project to 45 feet. We wish to express support for this request.



LOCATION MAP



SCALE IN MILES



**NEW YORK HARBOR
CLAREMONT TERMINAL, N.J.**

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT OFFICE OF ENGINEERS
NEW YORK, NEW YORK

NEW YORK HARBOR AND ADJACENT CHANNELS, CLAREMONT CHANNEL
 NEW JERSEY
 (PRECONSTRUCTION ENGINEERING AND DESIGN)

FY'96 PRESIDENT'S BUDGET REQUEST	\$400,000
PROJECT SPONSOR RECOMMENDATION	\$400,000

Project Description

The Claremont Terminal Channel is located in New York Harbor in Hudson County, New Jersey. The channel is a privately maintained channel, 27 feet deep, extending northwesterly approximately 10,000 feet from the Anchorage Channel to the head of navigation. Vessels using Claremont must load to less than their capacity and then complete their loading in deeper channels, incurring increased costs and time delays in port. The principal users of the channel are scrap metal dealers exporting an average of 675,000 tons annually.

Claremont Channel is presently a non-federal channel at an average depth of 27 ft. MLW located just north of the Port Jersey Channel. A project to deepen Claremont Channel to 42 ft. MLW was authorized for construction subject to a favorable report by the Secretary of the Army in the Water Resources Development Act of 1986 (P.L. 99-662). While authorized to 42 ft., the modified project will provide adequate shipping economies with a 34 ft. channel.

Project Sponsor Recommendation

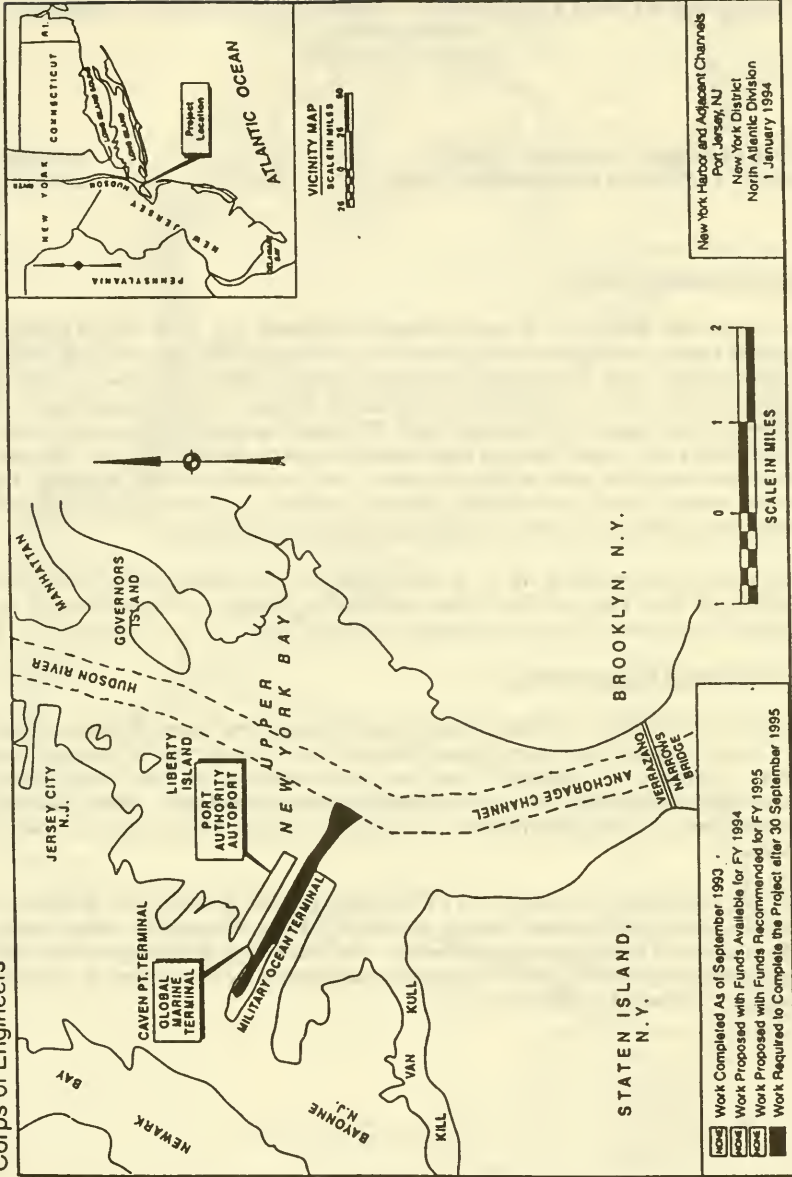
Local interests desire a deeper channel to better accommodate vessels used to export scrap metals and transship ~~crushed stone~~. Deepening will increase transportation efficiency by reducing the costs of topping off vessels and waiting for favorable tides. Local interests also believe that greater channel depths will increase safety by permitting vessels to operate with more desirable clearances.

Based upon newly-adopted environmental criteria of sediments at this project site, there are indications that the sediment may now be unsuitable for ocean disposal. Federal, State and local interests are working with the Corps of Engineers to address disposal issues on a harbor-wide basis.

We wish to support the FY'96 Budget Request of \$400,000 to complete the preconstruction engineering and design work for improvements to the Claremont Channel. These funds will be used to complete economic analyses, environmental and engineering work, testing of dredged material, begin plans and specifications and the General Design Memorandum. This activity is necessary to advance the construction phase of this improvement in FY'97.

Department of the Army

Corps of Engineers



New York Harbor and Adjacent Channels
 Port Jersey, NJ
 New York District
 North Atlantic Division
 1 January 1994

SCALE IN MILES
 0 1 2

Work Completed As of September 1993
 Work Proposed with Funds Available for FY 1994
 Work Proposed with Funds Recommended for FY 1995
 Work Required to Complete the Project after 30 September 1995

NEW YORK HARBOR AND ADJACENT CHANNELS, PORT JERSEY CHANNEL
 NEW JERSEY
 (CONSTRUCTION)

FY'96 PRESIDENT'S BUDGET REQUEST	\$550,000
PROJECT SPONSOR RECOMMENDATION	\$550,000

PROJECT DESCRIPTION

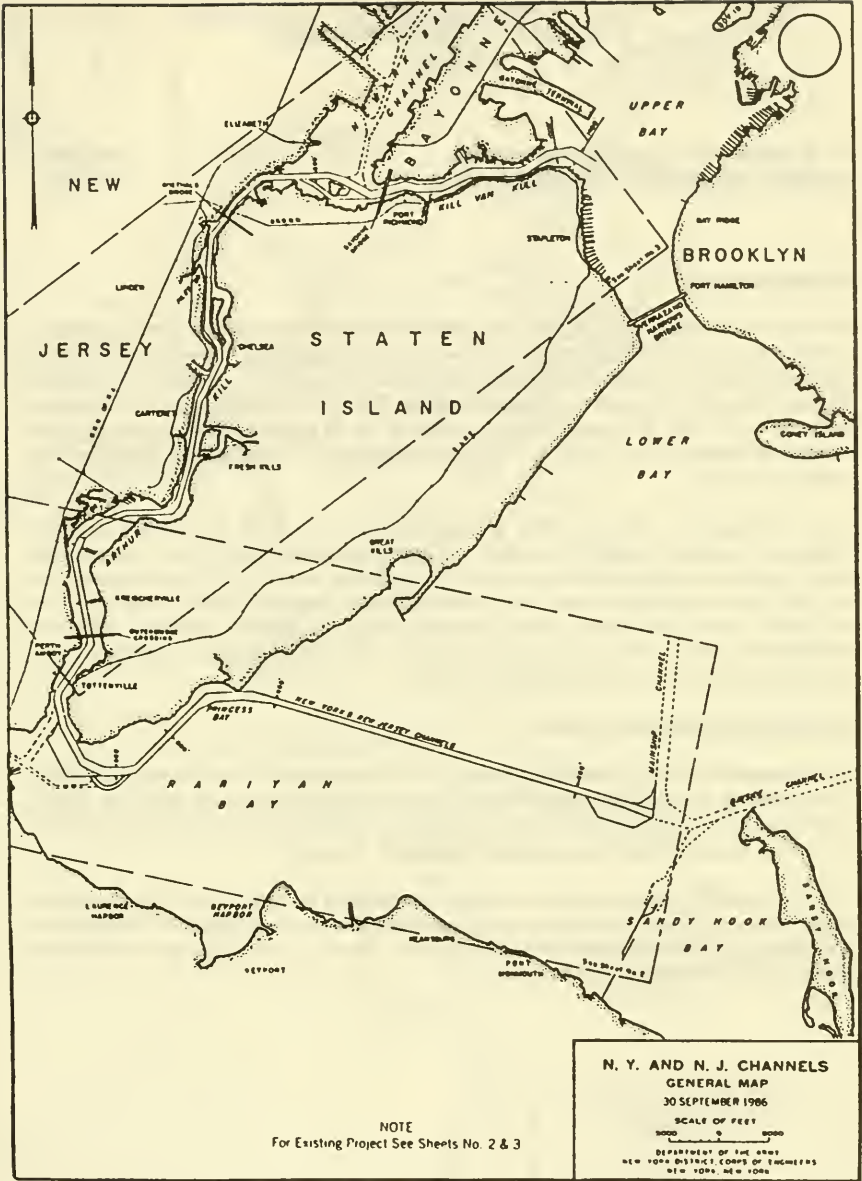
This project will deepen a 35 ft. access channel (non-federal) to a 41 ft. channel (federal), providing a safe and economic use of this waterway at all stages of tide. The Port Jersey Access Channel presently serves the Global Marine Container Terminal, which in turn serves 13 shipping lines and two slot carriers. This facility annually handles 300 ships, 100 barge arrivals and over 200,000 container units. Of the arriving vessels, 75 percent had design drafts too deep for the channel, with a third actually loaded to drafts necessitating delays awaiting high tide. More than 300 terminal employees, with an annual payroll of over \$21 million, as well as another 120 contract workers, depend upon this facility for their livelihood. As a privately-owned terminal, Global also pays nearly \$4.0 million in federal, State and local taxes annually.

Also served by this channel is the U. S. Army Military Ocean Terminal facility and the Port Authority of New York and New Jersey Auto Marine Terminal. This improvement was authorized by the Water Resource Development Act of 1986.

Project Sponsor Recommendation

The future of this facility is critically dependent upon a channel of ~~at least 40 ft. deep~~, so that it may remain competitive with other container terminals served by waterways of this and greater depths. Presently, the initiation of Plans and Specifications and the final General Design Memorandum have been delayed by newly-adopted sediments testing criteria. Federal, State and local interests are working with the Corps of Engineers to address disposal issues on a harbor-wide basis.

We wish to express our support for the FY'96 Budget Request of \$550,000 to be utilized to resolve disposal issues complete retesting of dredged material, complete the General Design Memorandum and initiate plans and specifications. The State of New Jersey supports this project and is participating with the Corps of Engineers in developing the Project Cooperating Agreement necessary to advance the construction start.



NOTE
For Existing Project See Sheets No. 2 & 3

N. Y. AND N. J. CHANNELS
GENERAL MAP
30 SEPTEMBER 1906

SCALE OF FEET
0 5000 10000

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
NEW YORK, NEW YORK

(SHEET NO. 1 OF 3 SHEETS)

**NEW YORK HARBOR AND ADJACENT CHANNELS
RARITAN BAY ANCHORAGE AREAS
(STUDY)**

FY'96 PRESIDENT'S BUDGET REQUEST	\$100,000
PROJECT SPONSOR RECOMMENDATION	\$100,000

Project Description

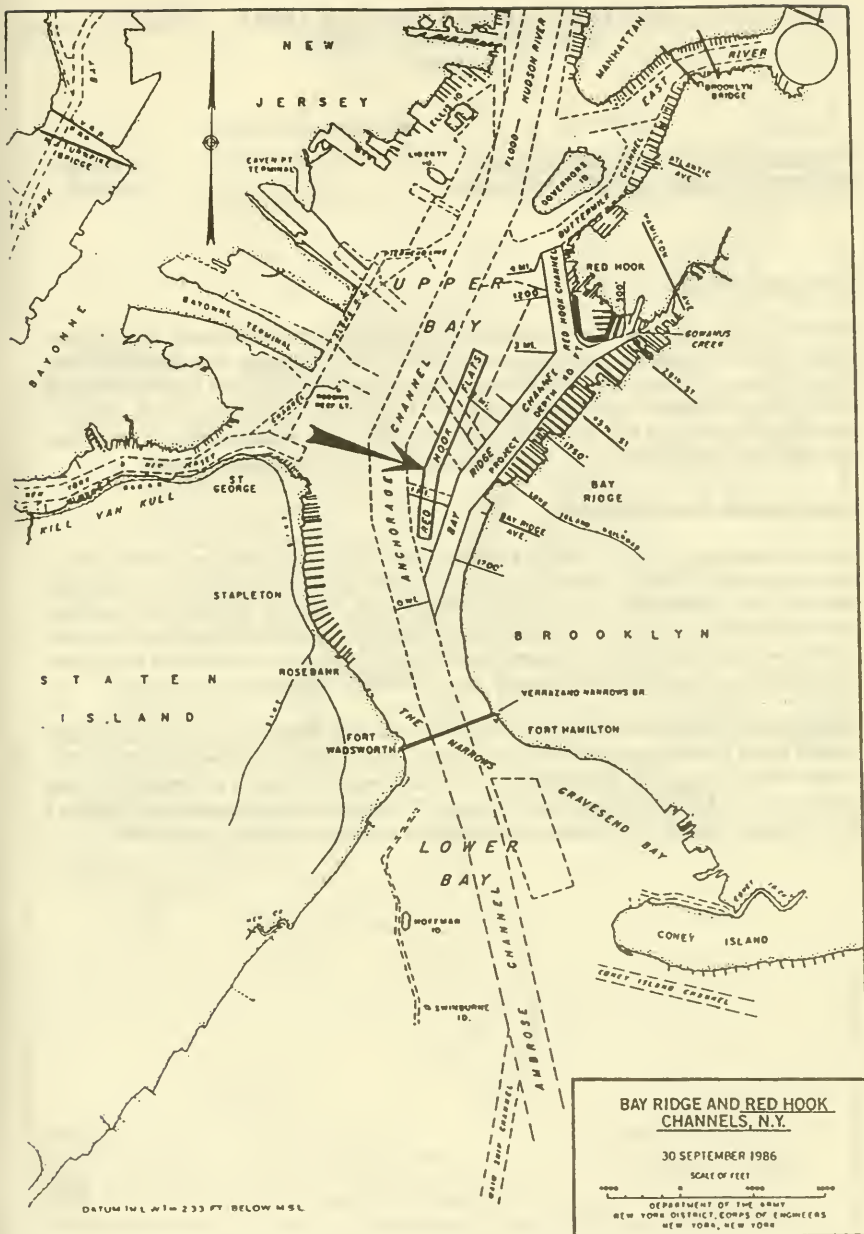
Raritan Bay Anchorage Areas, a part of the New York Harbor and Adjacent Channels project, include two separate anchorage areas to be considered for navigation improvements: Perth Amboy and Sandy Hook. Perth Amboy anchorage area, located at the junction of Raritan River, Raritan Bay and Arthur Kill, was authorized to depths ranging from 255-38 ft. deep, a length of one mile, and a width of 1,800 ft. Sandy Hook, due west of the tip of Sandy Hook Peninsula at the entrance to the Main Ship Channel, is 1.4 miles long and 1,600 ft. wide, but this anchorage was never constructed.

Recent investigations verify that there is a significant increase in the number of commercial navigation vessels with drafts of over 40 ft. and lengths of approximately 1,000 ft. entering the area. The larger vessels occupy more room in the anchorage areas, and with the increased size, the ships' maneuverability decrease, which requires greater clearances between the vessels. As the larger vessels each require more anchorage room, the existing anchorage areas can accommodate fewer vessels. The overcrowding and subsequent additional movements create a great potential for costly vessel accidents and spills.

Project Sponsor Recommendation

The reconnaissance effort, consisting of the study and subsequent report, was completed in March 1994 revealing and recommending favorable improvement alternatives for the Perth Amboy Anchorage. These alternatives will consist of widening only; widening and enlarging and a third alternative consisting of both widening and enlarging and dredging.

This project will help to provide safe navigation and maintain our bi-state port's productivity by being able to accommodate vessels awaiting movement to shore-based facilities. We appreciate its inclusion in the President's FY'96 Budget Request. The Port Authority of New York & New Jersey has expressed support for this study.



NEW YORK HARBOR ANCHORAGE AREAS
NEW YORK AND NEW JERSEY
(STUDY)

FY'96 PRESIDENT'S BUDGET REQUEST	\$100,000
PROJECT SPONSOR RECOMMENDATION	\$100,000

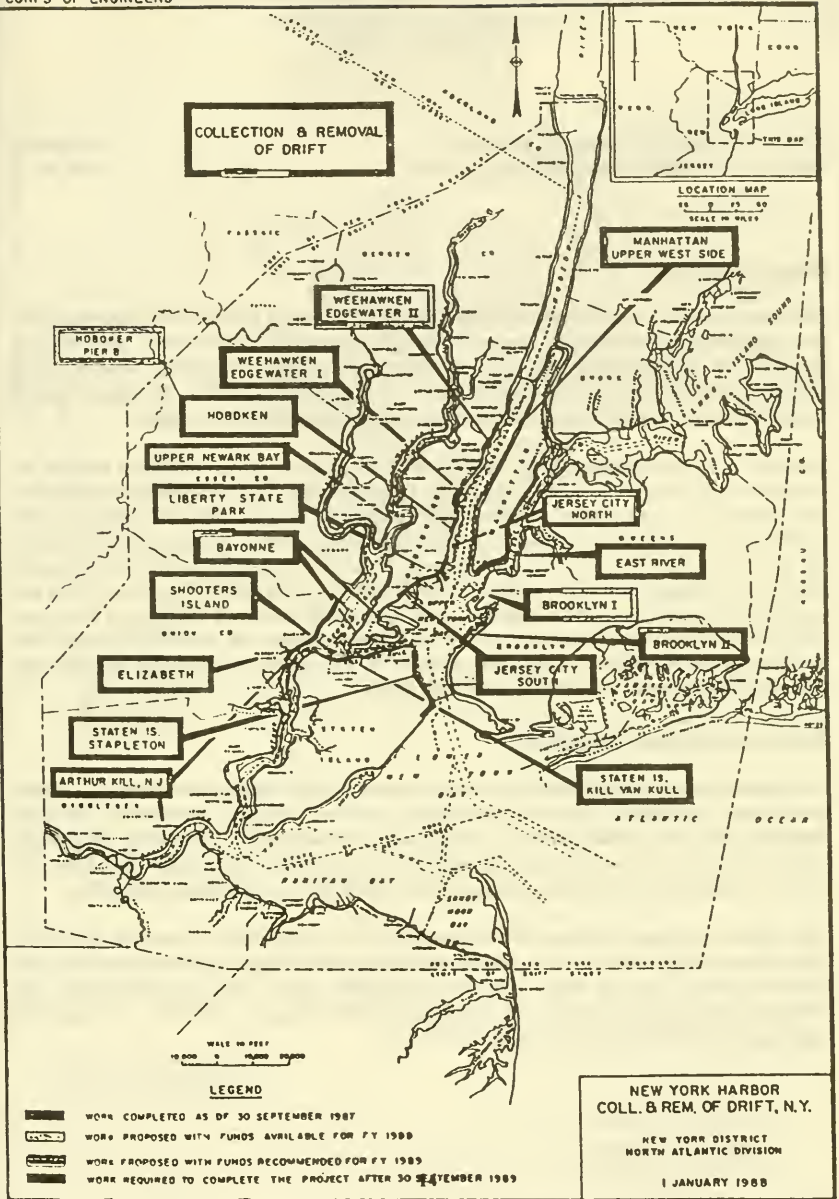
Project Description

Within the Lower and Upper New York Bays, three anchorage's exist that cannot accommodate today's class of ocean-going cargo ships and tankers. The anchorages were designed by the Corps of Engineers in the early 1960s for a vessel averaging 525 ft. in overall length with a draft of 30 ft. Today's modern container ships are almost 1,000 ft. long with drafts of 40 ft., therefore requiring additional space and depth beyond that allowed for in the original design. If the bi-state port is to remain productive, it must modernize to accommodate today's larger vessels.

Project Sponsor Recommendation

Recent investigations verify that there is a significant increase in vessels with drafts of 40 to 46 ft. and lengths of approximately 1,000 ft. The larger vessels occupy more room in the anchorage areas, and with the increased size, the ships' maneuverability decreases, which requires a greater clearance between the vessels. Thus, the existing anchorage areas can accommodate fewer ships. Vessels awaiting a space in the anchorage area can stay in other sheltered areas for a limited time before operating rules require that they must port and return for anchorage.

The Corps of Engineers were authorized to undertake this study under a Congressional resolution adopted by the Senate Committee on Environment and Public Works on December 5, 1980. This project will help to provide safe navigation and maintain our bi-state port's productivity by being able to accommodate today's larger class of vessels. We appreciate its inclusion in the President's FY'96 Budget Request. These funds will be utilized to advance the feasibility study phase.



COLLECTION & REMOVAL OF DRIFT

MANHATTAN UPPER WEST SIDE

WEEHAWKEN EDGEWATER II

HOBOPER PIER B

WEEHAWKEN EDGEWATER I

HOBOKEN

UPPER NEWARK BAY

LIBERTY STATE PARK

BAYONNE

SHOOTERS ISLAND

BROOKLYN I

ELIZABETH

JERSEY CITY SOUTH

BROOKLYN II

STATEN IS. STAPLETON

STATEN IS. KILL VAN KULL

ARTHUR KILL, N.J.

SCALE IN FEET
10,000 20,000 30,000

LEGEND

- WORK COMPLETED AS OF 30 SEPTEMBER 1987
- WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1988
- WORK PROPOSED WITH FUNDS RECOMMENDED FOR FY 1989
- WORK REQUIRED TO COMPLETE THE PROJECT AFTER 30 SEPTEMBER 1989

NEW YORK HARBOR COLL. & REM. OF DRIFT, N.Y.

NEW YORK DISTRICT
NORTH ATLANTIC DIVISION

1 JANUARY 1988

**NEW YORK HARBOR COLLECTION AND REMOVAL OF DRIFT
NEW YORK AND NEW JERSEY
(CONSTRUCTION)**

FY'96 PRESIDENT'S BUDGET REQUEST	\$100,000
PROJECT SPONSOR RECOMMENDATION	\$100,000

Project Description

This project is aimed at the removal of approximately 2,230 sunken hulks and 149 decaying shore structures that are the source of dangerous, unsightly and costly harbor drift. The Corps of Engineers has estimated that nearly 18,000 commercial, public and recreation vessels collide annually with drift in our port, causing damage to propellers, shafts and hulls. In addition, annual associated repair costs and other economic losses average greater than \$53 million.

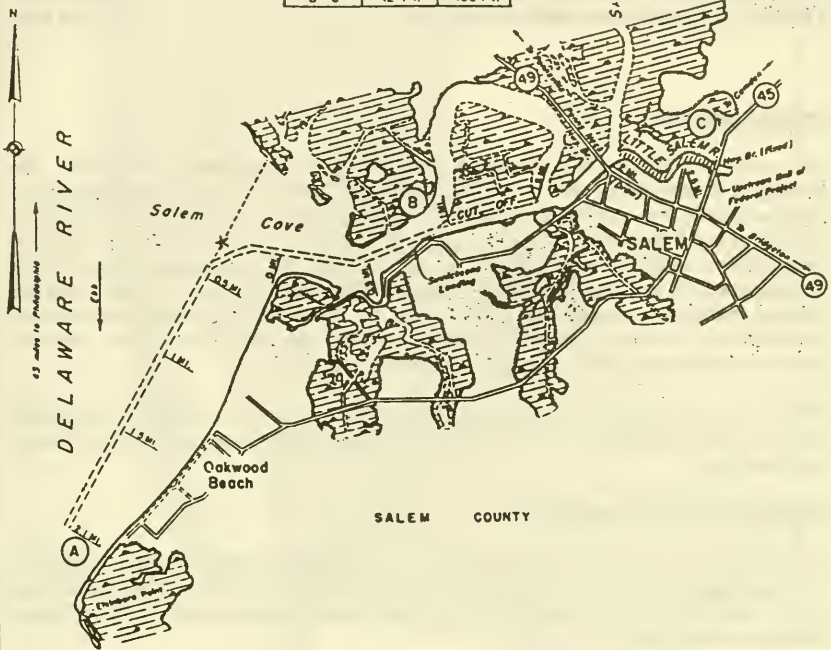
The New York State Department of Environmental Conservation is the non-federal sponsor for all work in New York State. Local Cooperation Agreements (LCAs) for the East River Stapleton and Brooklyn 1 reaches were executed in December 1979, July 1983 and August 1984, respectively. The New Jersey Department of Environmental Protection is the non-federal sponsor for all work in New Jersey. LCAs for Elizabeth, Hoboken, Jersey City South, Weehawken to Edgewater, and Bayonne reaches were executed in October 1982, June 1984, August 1984 and April 1986, respectively. An LCA for the Jersey City North reach was executed in September 1987 with the New Jersey Department of Environmental Protection and modified in March 1992. An LCA for the Brooklyn 2A reach was scheduled to be executed in June 1994 with the New York State Department of Environmental Conservation.


Project Sponsor Recommendation

The project plan consists of demolition and disposal of derelict vessels, debris along the shores, unoccupied deteriorated shore structures and repair of occupied deteriorated structures throughout the Port of New York to reduce hazards to navigation by removing the potential sources of drift at the source and also to restore the shores of New York Harbor to full use. To date, 18 construction contracts have been awarded, and all but one are physically complete.

This project is strongly supported by the States of New York and New Jersey and the City of New Jersey, all local sponsors of the project, who in this time of tight budgets are prepared to pay their non-federal share of costs. Due to unanticipated delays, this proposed funding with carryover funds from last Fiscal Year is sufficient for this program. Therefore, we support an appropriation of \$100,000 for this project in FY'96.

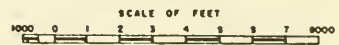
CHANNEL DIMENSIONS		
LOCATION	DEPTH	WIDTH
A - B	12 FT.	150 FT.
B - C	12 FT.	100 FT.



AREA WHERE NEW WORK REMAINS TO BE DONE, SHOWN THUS: 

THIS AREA HAS BEEN DREDGED TO A DEPTH OF 9 FEET.

SALEM RIVER
NEW JERSEY
REVISED 30 JUNE 1968



U.S. ARMY ENGINEER DISTRICT, PHILA.

**SALEM RIVER NEW JERSEY
(CONSTRUCTION)****FY'96 PRESIDENT'S BUDGET REQUEST
PROJECT SPONSOR RECOMMENDATION****\$3,576,000
\$3,576,000****Project Description**

This project is a tributary of the Delaware River located in Salem County, New Jersey. The existing 12 ft. deep federal project varies in width from 100 ft. to 150 ft. and provides for an entrance channel from the Delaware River to a fixed highway bridge in Salem, New Jersey; a distance of about five miles. These dimensions do not provide adequate depths or widths to permit efficient transit of vessels calling at the Port of Salem. This necessitates the use of costly shipping practices, including lightloading, waiting for high tides and the use of smaller ships that terminal facilities can accommodate. The problem is expected to worsen as the commercial navigation fleet expands. The plan of improvement was formulated in an Interim Feasibility Report to the Delaware River Comprehensive Navigation Study.

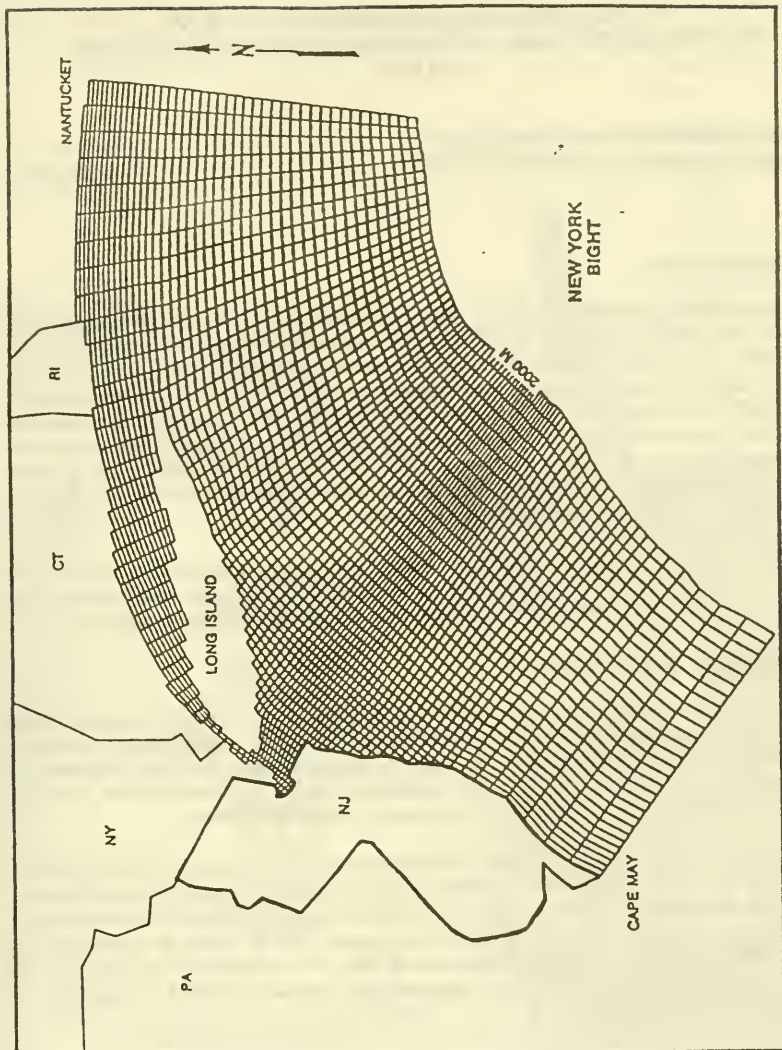
The Draft Environmental Assessment found no significant impact, and a Section 401 water quality certificate will be obtained from the New Jersey Department of Environmental Protection prior to construction.

Project Sponsor Recommendation

We wish to support the Fiscal Year 1996 Budget Request of \$3,576,000 to continue construction for deepening of the existing project to 16 ft. MLW, widening to 180 ft., providing a turning basin and to effectuate a channel realignment to increase vertical clearance under a powerline and minimize dredging costs.

This facility is important to commerce and to the economy of the entire South Jersey region, and presently ranks as the 38th largest export port in the United States. Not only will the deepening of this channel allow for larger vessels and new job opportunities, but there will be an increase in landside public/private investment from the beneficiaries. Over the last year, 100 ships have docked at the Port of Salem and the adjacent Mid-Atlantic Terminal, and additional trade routes are being developed in anticipation of the deepened channel.

The total cost is approximately \$ 9,160,000. To date, the Design Memorandum and the plans and specifications have been completed. Also, the Project Cooperation Agreement is currently under review and the Sponsor has initiated Real Estate Acquisition.



**WATER RESOURCES DEVELOPMENT ACT OF 1992
SECTION 326, NEW YORK BIGHT, HYDRO-ENVIRONMENTAL STUDY
(STUDY)**

FY'96 PRESIDENTS BUDGET REQUEST	\$ -0-
PROJECT SPONSOR RECOMMENDATION	\$1,000,000

Project Description

As a continuation of the study pursuant to Section 728 of the Water Resources Development Act of 1986, the Secretary shall study an HYDRO-environmental monitoring and information system in the New York Bight and New York Harbor and tributaries to the head of tide, in the form of a system using computerized buoys and radio telemetry that allows for the continual monitoring (at strategically located sites throughout the New York Bight and Harbor region) of the following: wind, wave current salinity and thermal gradients and sea chemistry, in order to measure the effect of changes due to air and water pollution, including changes due to continued dumping in the Bight. This effort will include the study of a verified, nested, high resolution Harbor/Bight Apex numerical model, and supportive monitoring and information systems.

This New York Bight and Harbor effort will address the engineering, environmental and social impacts of natural and man-made changes to the New York Bight, including water quality parameters such as contaminant and sediment transport effects and nutrient eutrophication.

Project Sponsor Recommendation

This project extends all particulars of the New York Bight model previously addressed under Section 728 of the ~~Water Resources~~ Development Act of 1986, to the complex New York Harbor Environs. It will also add features to the Bight model itself to insure complete comprehensive modeling of the Harbor and Bight for all engineering, physical and environmental purposes, making it the most advanced water quality and transport model in the country.

The Water Resources Development Act of 1992 authorizes \$1.0 million to provide data on movement and sources of water and sediment pollution. This project is urgently needed to ensure the proper management of dredged material and its disposal, which is essential to the maintenance of the port's navigation projects. Therefore, we request that \$1 million is appropriated to advance the schedule for completion and provide this much needed tool for understanding sediment contaminant loading(s) for the management and disposal of dredged material from the New York/New Jersey Harbor.



ALL
DREDGED
UP
AND
NO
PLACE
TO
GO

**WATER RESOURCES DEVELOPMENT ACT OF 1992
SECTION 405, SEDIMENT DECONTAMINATION TECHNOLOGIES
(STUDY)**

**FY'96 PRESIDENT'S BUDGET REQUEST
PROJECT SPONSOR RECOMMENDATION**

**\$ -0-
\$3,000,000**

Project Description

Based upon a review of decontamination technologies identified pursuant to Section 412(c) of the Water Resources Development Act of 1990, the Administrator of the Environmental Protection Agency and the Secretary shall, within one year after the date of the enactment of the Act, jointly select removal, pre-treatment and decontamination technologies for contaminated marine sediments for a decontamination project in the New York/New Jersey Harbor.

Upon selection of technologies, the Administrator and the Secretary shall jointly recommend a program of selected technologies to assess their effectiveness in rendering sediments acceptable for unrestricted ocean disposal or beneficial reuse, or both.

Project Sponsor Recommendation

The Water Resources Development Act of 1992 authorized \$5.0 million for exploring methods of sediment decontamination and its practical use in managing dredged materials that are contaminated. The Corps and EPA effort has investigated a number of promising technologies, all of which require further work before use. Therefore, continuation of the demonstration project is essential to the maintenance of the port's navigation channels and can serve as a model for use in other locations in the country. Moreover, we have been working with environmental organizations in our region within the framework of the New York and New Jersey Harbor Estuary Dredging Forum to promote this demonstration. Therefore, we urgently request that \$3.0 million be appropriated to continue this most vital program.

FLOOD CONTROL/FLOOD DAMAGE PROTECTION

LOWER SADDLE RIVER, NJ (PE&D)

**MOLLY ANN'S BROOK AT HALEDON, PROSPECT PARK AND PATERSON, NJ
(CONSTRUCTION)**

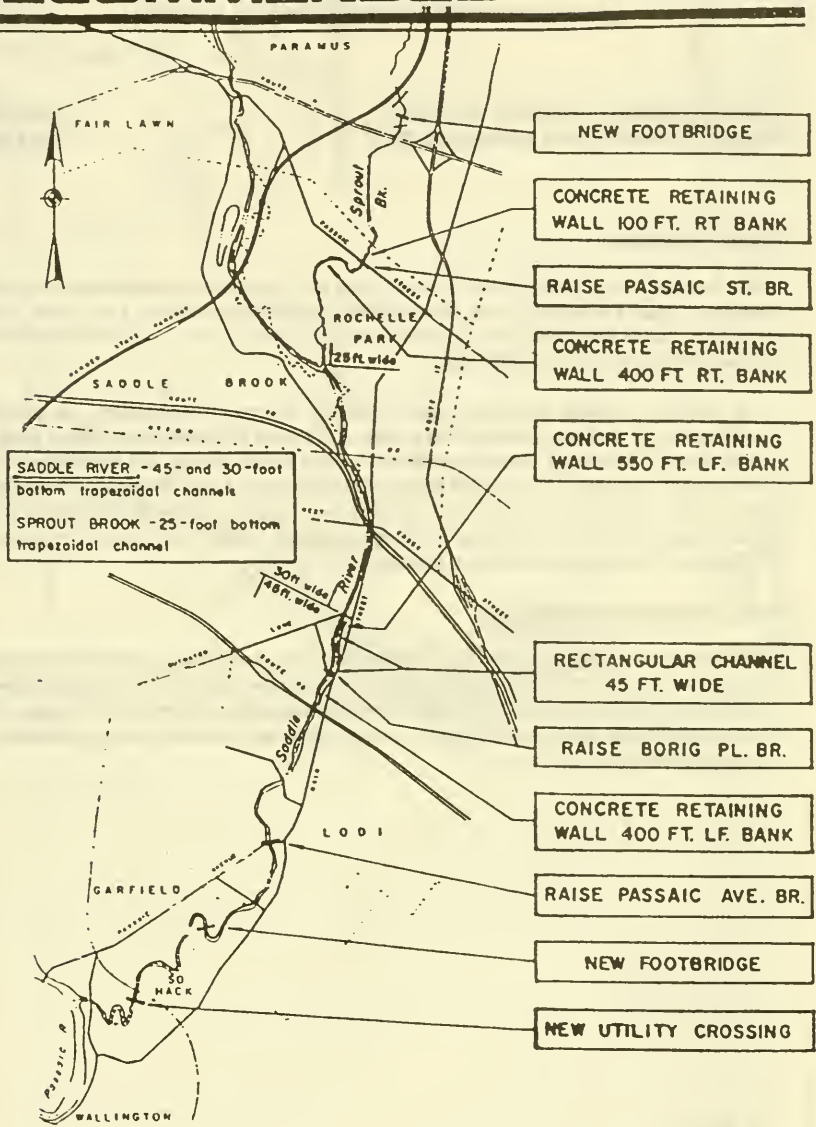
RAMAPO RIVER AT OAKLAND, NJ (CONSTRUCTION)

RARITAN RIVER BASIN, GREEN BROOK SUB-BASIN, NJ (PE&D)

RARITAN RIVER BASIN, SOUTH RIVER, NJ (STUDY)

STONY BROOK, PRINCETON TOWNSHIP, NJ (STUDY)

RECOMMENDED PLAN



NEW FOOTBRIDGE

CONCRETE RETAINING WALL 100 FT. RT BANK

RAISE PASSAIC ST. BR.

CONCRETE RETAINING WALL 400 FT. RT. BANK

CONCRETE RETAINING WALL 550 FT. LF. BANK

RECTANGULAR CHANNEL 45 FT. WIDE

RAISE BORIG PL. BR.

CONCRETE RETAINING WALL 400 FT. LF. BANK

RAISE PASSAIC AVE. BR.

NEW FOOTBRIDGE

NEW UTILITY CROSSING

SADDLE RIVER - 45- and 30-foot bottom trapezoidal channels
 SPROUT BROOK - 25-foot bottom trapezoidal channel

30 ft wide
 48 ft wide

PARAMUS
 FAIR LAWN
 SADDLE BROOK
 ROCHELLE PARK
 25 ft wide
 Lodi
 GARFIELD
 WALLINGTON
 PASSAIC R.

LOWER SADDLE RIVER
NEW JERSEY
(PRECONSTRUCTION ENGINEERING AND DESIGN)

FY'96 PRESIDENT'S BUDGET REQUEST	\$963,000
PROJECT SPONSOR RECOMMENDATION	\$963,000

Project Description

Major flooding of the Saddle River in recent years has plagued the communities of Garfield, Wallington, South Hackensack, Lodi, Saddle Brook, Rochelle Park and Fair Lawn, New Jersey. The Lower Saddle River study area, located in Bergen County, affects over 2,500 recreational, commercial and industrial establishments.

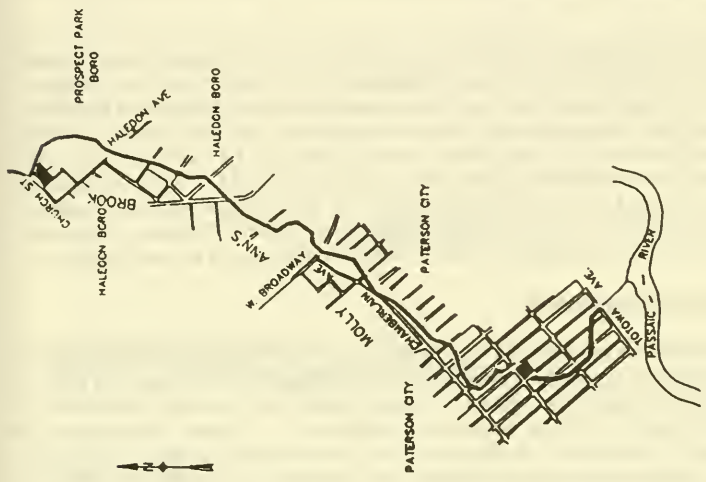
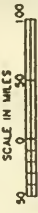
In an effort to provide protection against flooding in these communities, the proposed improvements for the Lower Saddle River consist of 5.2 miles of channel modification along the Saddle River, 1.7 miles of channel modification along Sprout Brook, the straightening of a meander near the mouth of the Saddle River and modifications to 22 bridges on both streams. These project improvements would provide protection against a 150-year flood event to the affected area. The recommendations for flood control of Saddle River would eliminate over \$6,000,000 of flood damage to the area annually.

Project Sponsor Recommendation

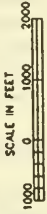
This flood control protection project was authorized for construction by the Water Resources Development Act of 1986. We wish to express support for the Fiscal Year 1996 Budget Request of \$963,000, which will be used to continue the preconstruction engineering and design phase, develop the General Design Memorandum, prepare Plans and Specifications and advance to a construction start in Fiscal Year 1997.



VICINITY MAP



PLAN



LEGEND

- WORK COMPLETED AS OF 30 SEPT. 1993
- WORK PROPOSED WITH FUNDS AVAILABLE FOR FY 1994
- WORK PROPOSED WITH FUNDS REQUESTED FOR FY 1995
- WORK REQUIRED TO COMPLETE THE PROJECT AFTER FY 1995

MOLLY ANN'S BROOK
 PASSAIC COUNTY, NEW JERSEY
 1 JANUARY 1994
 SCALE AS SHOWN
 U.S. ARMY ENGINEER DISTRICT, PHILA.

**MOLLY ANN'S BROOK AT HALEDON, PROSPECT PARK AND PATERSON
NEW JERSEY
(CONSTRUCTION)**

FY'96 PRESIDENT'S BUDGET REQUEST	\$3,750,000
PROJECT SPONSOR RECOMMENDATION	\$3,750,000

Project Description

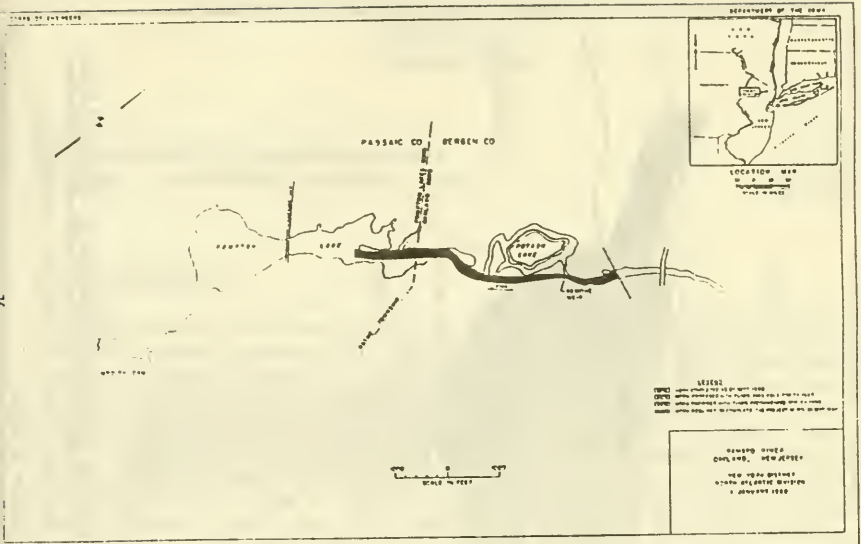
Molly Ann's Brook is a tributary of the Passaic River, located in the municipalities of Haledon, Prospect park and Paterson, New Jersey, and is approximately 12 miles west-northwest of New York City.

The flood damage areas along Molly Ann's Brook extend from its mouth below Totowa Avenue in Paterson, New Jersey to Church Street in Haledon. The principal cause of flooding is overtopping of the channel banks due to insufficient channel capacity during high flow conditions. About 520 residential, commercial and industrial establishments are located in the 100-year floodplain. The November 1977 flood caused damages of about \$11.4 million (October 1988 price level), while a more recent event (May 1990) caused an estimated \$2.1 million in damages. The plan would provide a 50-year level of protection. The approved plan includes 2.5 miles of channel modification, five project bridge modifications (namely Berkshire, Sherwood, Manchester, Post and Haledon) and the removal of one building which now sits over the Brook.

Project Sponsor Recommendation

The Design Memorandum and Plans and Specifications for Phase I were approved in October of last year. The Project Cooperation Agreement (PCA) is scheduled to be executed this year. A public meeting for the project was held by the project sponsor, the New Jersey Department of Environmental Protection, and the reaction was supportive. A second public meeting is anticipated prior to construction. In December 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) authorized the Secretary of Transportation to modify the bridges as required under the recommended plan. FY'94-95 funds of \$1,432,000 were provided by Congress for the initiation of construction.

We wish to support the FY'96 Budget Request of \$3,750,000, which will be used to continue the construction phase of this project. The State of New Jersey Department of Environmental Protection is the project sponsor, with local interests who have expressed a willingness to participate.



RAMAPO RIVER AT OAKLAND, NEW JERSEY (CONSTRUCTION)

FY 96' PRESIDENTS BUDGET REQUEST
PROJECT SPONSOR RECOMMENDATIONS

\$70,000
\$70,000

Project Description

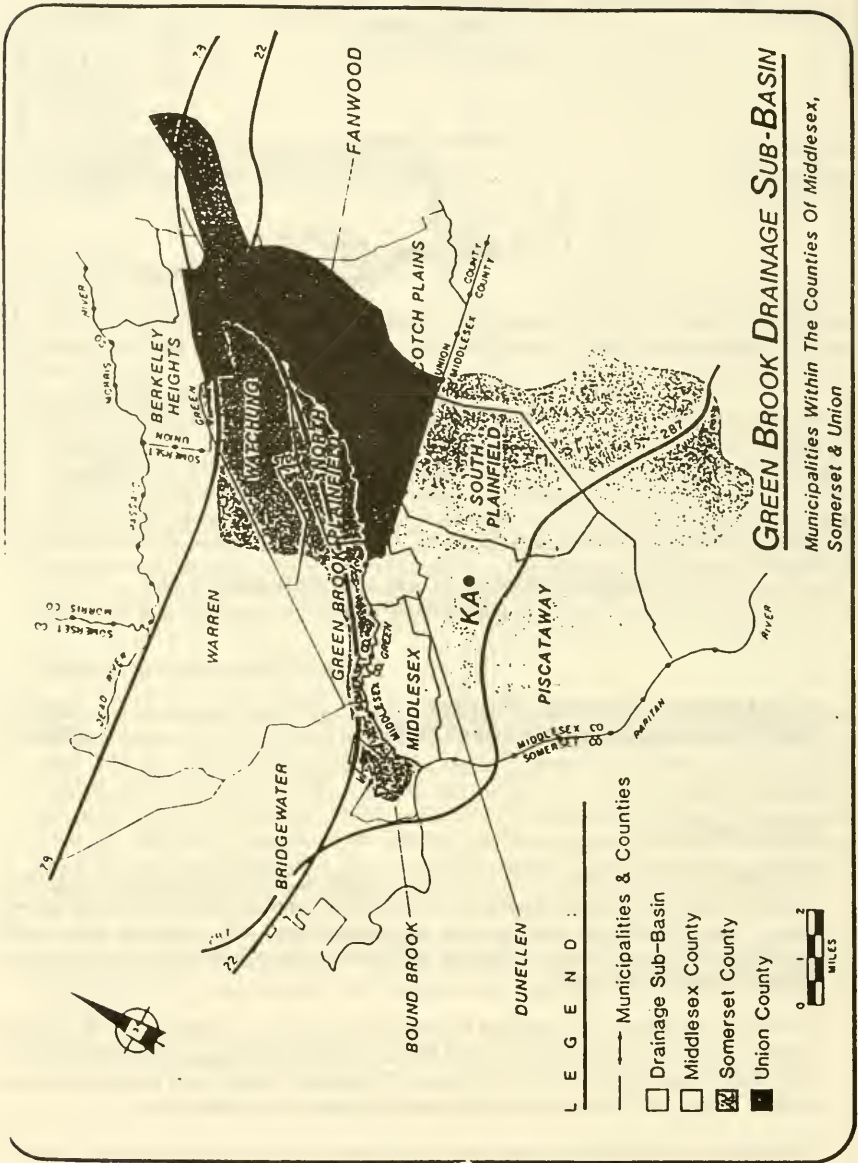
The Ramapo River, particularly in the Townships of Oakland, Wayne and Pompton Lakes, New Jersey, has experienced chronic flooding with recent floods occurring in ten out of the last sixteen years. Surrounded by an area saturated with development, 300 residences, along with recreational facilities and several commercial and industrial establishments, have been adversely affected by major flood damage.

The recommended plan of improvement for the study area includes installation of 5 ft. spillway crest gates atop Pompton Lakes Dam and 6,800 ft. of channel modification along with Ramapo River, both designed to reduce flood elevations. These improvements would provide protection against a 40-year flood event to over 300 structures throughout the planning area.

This project was authorized for construction by the Water Resources Development Act of 1986. The State of New Jersey has indicated its willingness to act as the non-federal cooperating agent for this project for land easement, rights-of-way and relocation as are necessary for the project.

Project Sponsor Recommendations

We wish to express support for the Fiscal Year 1996 budget request of \$70,000 which will be used to complete the Plans & Specifications for the 1st construction contract phase of this project. This activity will advance the execution of the Project Cooperation Agreement and construction contract award in FY'97. This project will require reauthorization under the Water Resources Development Act.



RARITAN RIVER BASIN, GREEN BROOK SUB-BASIN
NEW JERSEY
(CONSTRUCTION)

FY'96 PRESIDENT'S BUDGET REQUEST	\$3,600,000
PROJECT SPONSOR RECOMMENDATION	\$3,600,000

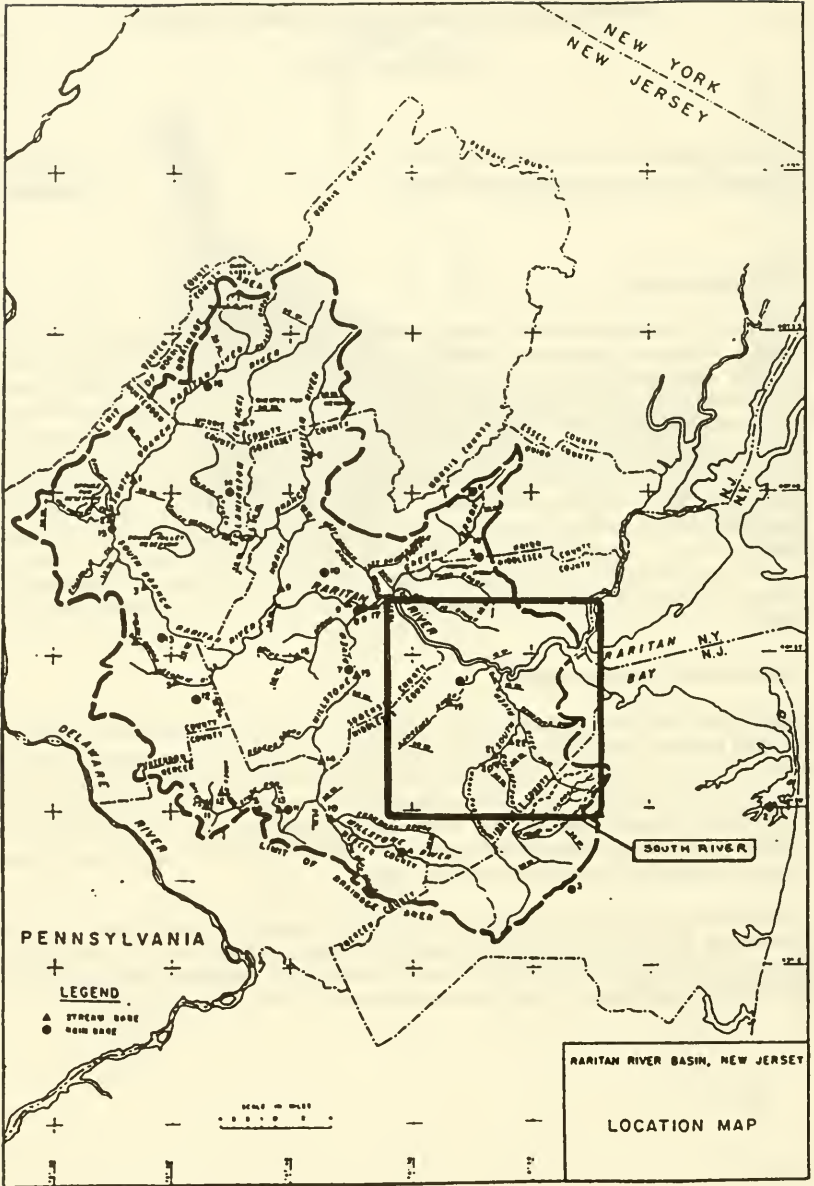
Project Description

The Green Brook Sub-basin area is located within the Raritan River Basin in north-central New Jersey in Middlesex, Somerset and Union Counties. It drains approximately 65 square miles of primarily urban and industrialized area. On August 28, 1971 Hurricane Doria caused \$22,200,000 in damages. Another major storm occurred on August 2, 1973, causing six deaths and resulting in \$25,800,000 in damages. At October 1993 prices, these damages would be \$81,900,000 and \$85,900,000, respectively. Hurricane Doria produced the maximum flood of record in the lower portion of the Green Brook Sub-basin. A Feasibility Report was completed in Fiscal Year 1980. The State of New Jersey, the Green Brook Flood Control Commission and local communities support the authorized plan or a modified version thereof. The benefit-cost ratio is 1.3 to 1. By letter dated May 20, 1993, the State of New Jersey's Department of Environmental Protection indicated a willingness to be the project sponsor and cost-share the project. The project is authorized for construction by the Water Resources Development Act of 1986.

Project Sponsor Recommendation

Fiscal Year 1995 funds are being used to continue preconstruction engineering and design, including hydraulic and hydrologic analyses, environmental and cultural investigations, subsurface exploration and data collection. A General Re-evaluation Report will be initiated and an optimal plan for the Sub-basin area will be finalized in June 1996. The plan will be coordinated with the local sponsor and local interests. The funds requested for Fiscal Year 1996 will be used to continue the design and general re-evaluation report. This preconstruction engineering and design effort is scheduled for completion in December 1996.

We believe that the Green Brook Flood Control project should be carried forward to achieve protection at the earliest possible date. This project is needed to prevent loss of life and property, as well as the trauma caused every time there is a heavy storm. We wish to support the Fiscal Year 1996 Budget Request of \$3,600,000 for this important flood control project.



RARITAN RIVER BASIN, SOUTH RIVER
NEW JERSEY
(STUDY)

FY'96 PRESIDENT'S BUDGET REQUEST	\$ 25,000
PROJECT SPONSOR REQUEST	\$300,000

Project Description

South River is a tributary to the Raritan River located in Middlesex County, New Jersey, draining a 132 square mile watershed, and flowing northerly into the Raritan River. The lower portion of the basin includes the Boroughs of Sayreville, South River and East Brunswick, and is highly developed and subject to tidal flooding. The upper portion of the basin is experiencing rapid growth.

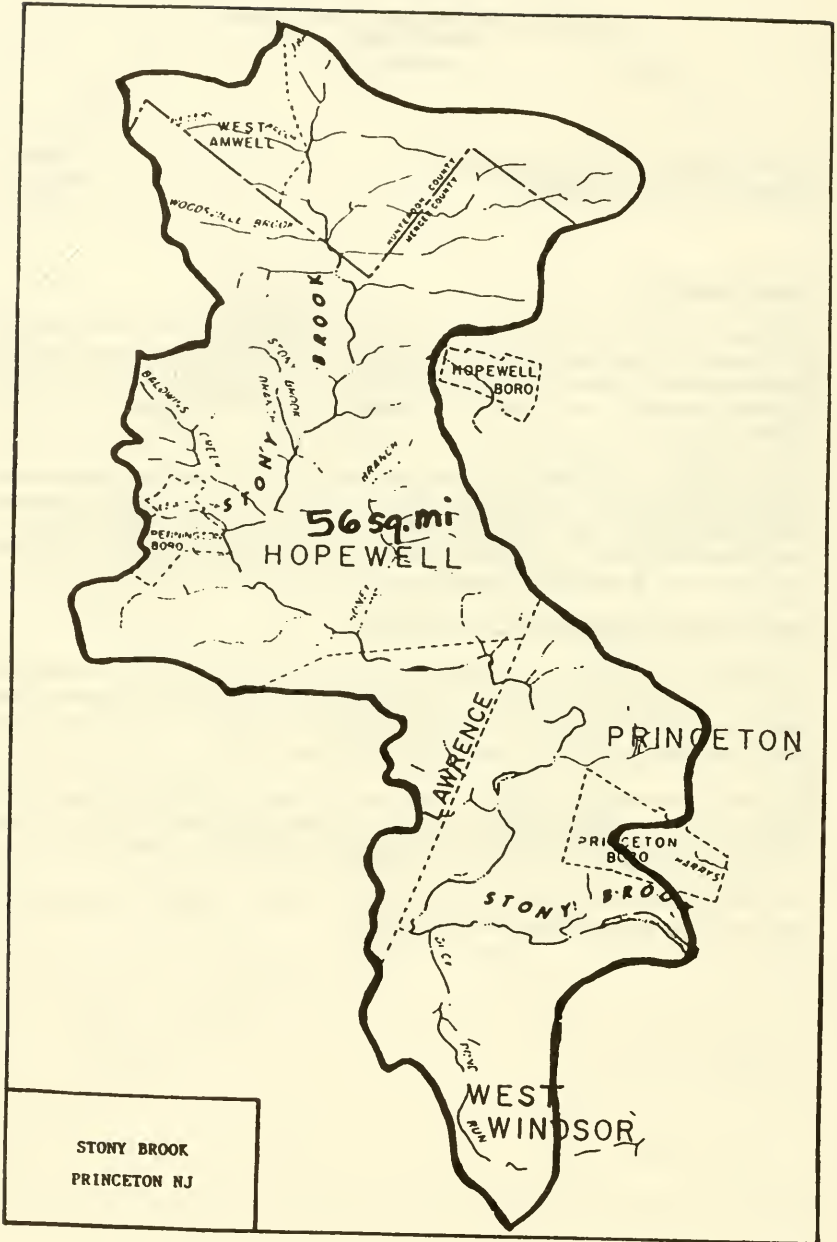
Flooding from Hurricane Gloria in September 1985 resulted in property damage, evacuations of residents and disruptions of businesses and transportation systems. Recent storms in December 1992 and March 1993 caused extensive damage to residential and commercial properties in Sayreville and South River. The December 1992 storm caused damages estimated at \$6,100,000 in the entire basin. Historically, flood elevations have exceeded six feet above mean high water.

Project Sponsor Recommendation

Fiscal Year 1995 funds were used to continue the reconnaissance phase. The funds requested for Fiscal Year 1996 will be used to complete the reconnaissance report, negotiate a feasibility cost-sharing agreement and develop an initial project management plan for a feasibility phase of the study. The reconnaissance report is scheduled for completion in 1995.

The State of New Jersey's Department of Environmental Protection has indicated its support for the study and its willingness to cost-share the feasibility phase of the study. This study will give consideration to local flood protection measures against damages in the South River Basin.

We wish to request that \$300,000 be appropriated in FY'96 to complete the reconnaissance report and advance this project into the feasibility phase.



**STONY BROOK, PRINCETON, NEW JERSEY
(STUDY)**

FY'96 PRESIDENT'S BUDGET REQUEST	\$250,000
PROJECT SPONSOR RECOMMENDATION	\$250,000

Project Description

The study area encompasses the entire 56 square mile Stony Brook Basin in the vicinity of Princeton Township, New Jersey. The study area has experienced significant population growth, which is expected to continue. Since 1954, fifty-six (56) flood events have been recorded at the Stony Brook gauge in Princeton, NJ. The proposed study is multipurpose and would integrate Federal, State, and local efforts regarding urban flood damage prevention, enhanced flood warning system, and other important outputs including water quality, water supply/low water augmentation, erosion control, environmental enhancements, and recreation.

Project Sponsor Recommendation

This project, which was authorized by Section 729 of the Water Resources Development Act of 1986, is a multipurpose storm damage reduction, ecological restoration and water quality general investigation.

We wish to express support for the FY'96 budget requested of \$ 250,000 to initiate this new start reconnaissance phase study.

SHORE PROTECTION/BEACH EROSION

BARNEGAT INLET TO LITTLE EGG INLET, NJ (STUDY)

BRIGANTINE INLET TO GREAT EGG HARBOR, NJ (STUDY)

DELAWARE BAY COASTLINE, DE & NJ (STUDY)

GREAT EGG INLET TO TOWNSEND INLET, NJ (STUDY)

LOWER CAPE MAY MEADOWS, CAPE MAY POINT, NJ (STUDY)

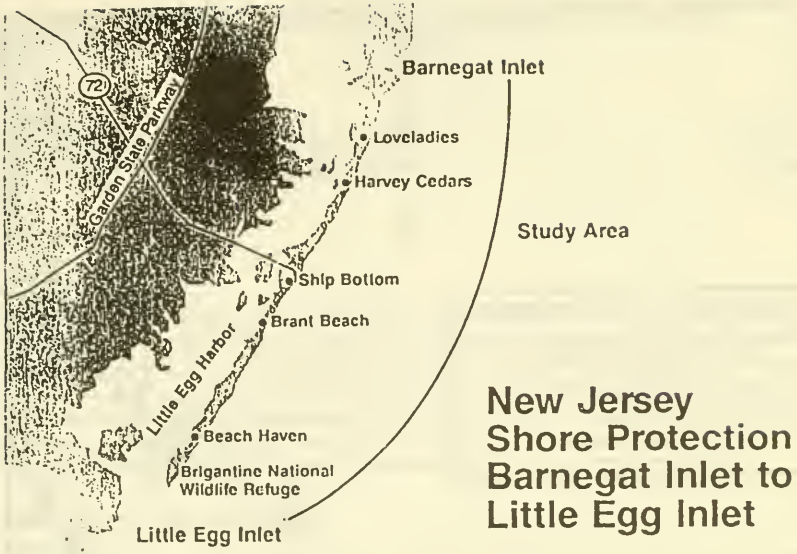
MANASQUAN INLET TO BARNEGAT INLET, NJ (STUDY)

RARITAN BAY AND SANDY HOOK BAY, NJ (STUDY)

RARITAN BAY AND SANDY HOOK BAY, CLIFFWOOD BEACH, NJ (STUDY)

SANDY HOOK TO BARNEGAT INLET, NJ (CONSTRUCTION)

TOWNSEND INLET TO CAPE MAY INLET, NJ (STUDY)



New Jersey Shore Protection Barnegat Inlet to Little Egg Inlet

BARNEGAT INLET TO LITTLE EGG INLET, NEW JERSEY (STUDY)

FY'96 PRESIDENT'S BUDGET REQUEST
PROJECT SPONSOR RECOMMENDATION

\$ -0-
\$550,000

Project Description

The study area is located along the southern Atlantic Coast of New Jersey, extending approximately 20 miles from Barnegat Inlet to Little Egg Inlet. The lands covered by the study are collectively known as Long Beach Island.

The principal purpose of the study is to investigate hurricane and storm damage problems attributed to natural and manmade conditions. The study will determine the effects of those conditions on man's activities in a coastal environment in an effort to alleviate coastal erosion. Additionally, the understanding of nearshore and estuarine environments and physical processes will assist the State of New Jersey in identifying sources and trajectories of noxious floating debris and spills of pollutants.

Project Sponsor Recommendation

Fiscal Year 1995 funds will be used to complete the reconnaissance phase of full Federal expense, negotiate a feasibility cost sharing agreement, and develop an initial project management plan for the feasibility phase of the study. The funds requested for Fiscal Year 1996 will be used to initiate the feasibility phase.

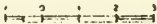
The State of New Jersey wishes to request that \$550,000 is appropriated for this project in Fiscal Year 1996. The New Jersey Department of Environmental Protection has indicated their intent to share equally in the feasibility phase of this study.

NEW JERSEY COASTAL INLETS & BEACHES

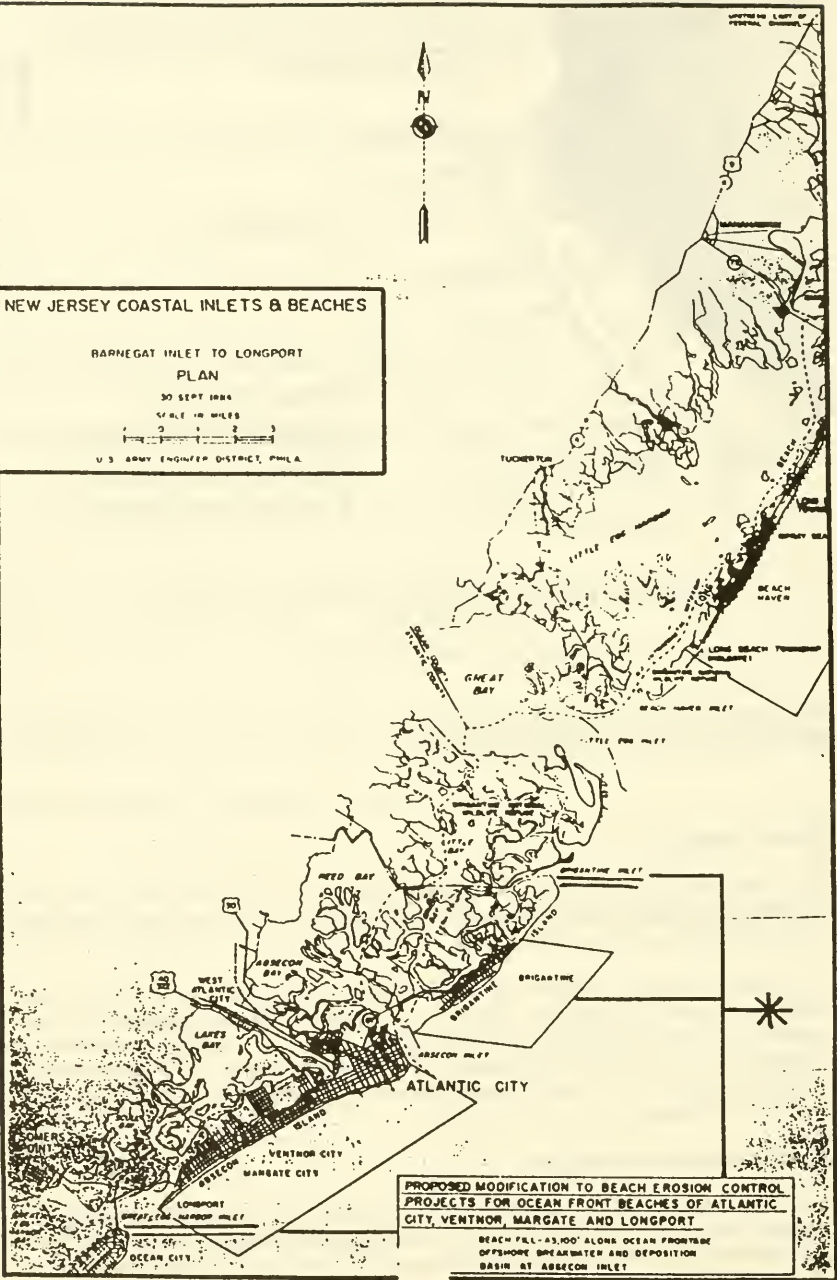
BARNEGAT INLET TO LONGPORT
PLAN

30 SEPT 1966

SCALE IN MILES



U. S. ARMY ENGINEER DISTRICT, PHILA.



**PROPOSED MODIFICATION TO BEACH EROSION CONTROL
PROJECTS FOR OCEAN FRONT BEACHES OF ATLANTIC
CITY, VENTNOR, MARGATE AND LONGPORT**

BEACH P.L. - 43,100' ALONG OCEAN FRONTAGE
OFFSHORE SAND BARRIER AND DEPOSITION
BASIN AT ABSECON INLET

**BRIGANTINE INLET TO GREAT EGG HARBOR, NEW JERSEY
(STUDY)**

FY'96 PRESIDENT'S BUDGET REQUEST	\$115,000
PROJECT SPONSOR RECOMMENDATION	\$115,000

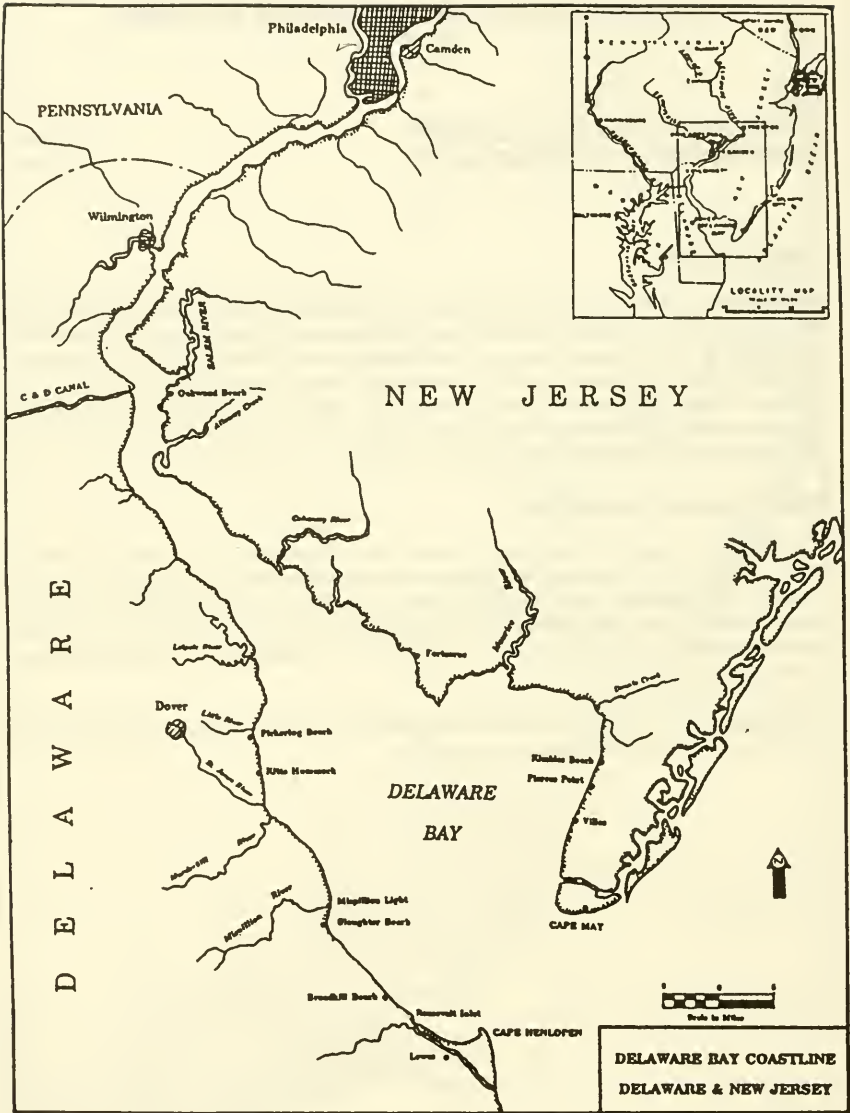
Project Description

The study area is a 15-mile New Jersey coastline from Brigantine Inlet to Great Egg Inlet. The reconnaissance report found more detailed study of shore protection measures to be warranted for the purpose of storm damage reduction. The feasibility study is being conducted in two stages. An interim study will be conducted for the reach from Absecon Inlet to Great Egg Harbor Inlet (Absecon Island). This interim includes substantial data acquisition and analysis to define existing coastal processes and conditions along the entire coast. The final report will cover the coastline from Brigantine Inlet to Absecon Inlet (Brigantine Island).

Project Sponsor Recommendation

Fiscal Year 1995 funds are being used to continue the feasibility phase of the study for Absecon Island interim study, including final plan formulation studies and report preparation, and to continue into feasibility phase of the Brigantine Island interim study including economic, environmental and real estate studies. The funds requested for Fiscal Year 1996 will be used to continue with the Brigantine Island interim study, finalize the draft Absecon Island interim study report and draft EIS.

We therefore wish to support the Fiscal Year 1996 Budget Request of \$115,000, based upon the current feasibility study schedule for this project.



DELAWARE BAY COASTLINE
NEW JERSEY AND DELAWARE
(STUDY)

FY'96 PRESIDENT'S BUDGET REQUEST	\$880,000
PROJECT SPONSOR RECOMMENDATION	\$880,000

Project Description

The study area is located along portions of the Delaware and New Jersey shorelines of the Delaware Bay. Approximately 60 miles of shoreline will be investigated for two areas: Cape Henlopen to the Chesapeake and Delaware Canal in the State of Delaware, and Cape May Point to the Salem River in the State of New Jersey. The study will evaluate all adverse impacts associated with storm damages along the shoreline, and determine the costs and benefits of potential federal projects.

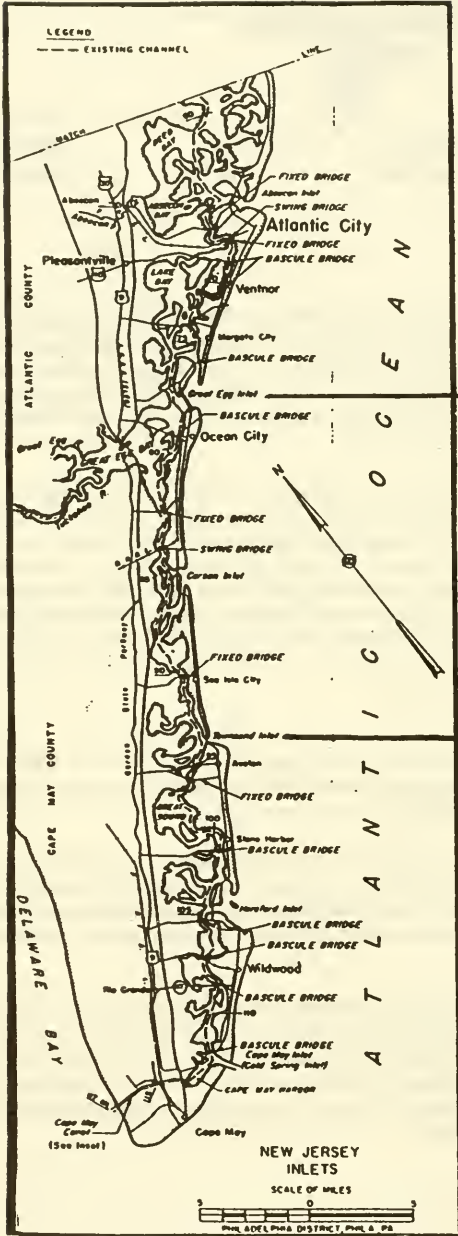
The Delaware Bay Coast has a long history of severe erosion, subjecting shoreline properties to storm damage from wave attack and tidal inundation, which has caused loss of lives, severe economic losses, and social disruption. Comparisons of early shoreline charts show continual erosion and accretion of shoreline over the past 112 years of record, resulting in substantial quantities of material lost, thereby narrowing and lowering the beaches. The areas where specific long-term erosion problems have occurred are Roosevelt Inlet/Lewes Beach and Mispillion Light in Delaware, and Elsinboro, Pierces Point, and Villas in New Jersey, with erosion rates estimated as high as 6ft. per year.

Project Sponsor Recommendation

The goal of the study is to provide information on the long-term shoreline changes, which will serve as a basis for sound coastal planning decisions and new technologies, including wetlands restoration, nourishment cycles and support of estuary programs.

Fiscal Year 1995 funds are being used to continue the feasibility studies, for Broadkill Beach, Delaware and the Maurice River area in New Jersey, and also to initiate feasibility studies for two additional interim study areas (Villas and vicinity, New Jersey and Roosevelt Inlet/Lewes Beach, Delaware). Fiscal Year 1996 funds will be used to continue the feasibility phase of six interim studies.

As the data is needed in order to deal with the beach erosion/flooding problems in the Delaware Bay area and to implement remedial measures, we wish to support the Budget Request of \$880,000 in Fiscal Year 1996 for this study, which was authorized by the Water Resources Development Act of 1986. Both the State of New Jersey and the State of Delaware are supportive of the study, and have expressed a willingness to cost-share the feasibility phase with each State providing its proportionate share.



STUDY AREA

GREAT EGG INLET
 TO
 TOWNSEND INLET

**GREAT EGG INLET TO TOWNSEND INLET, NEW JERSEY
(STUDY)****FY'96 PRESIDENT'S BUDGET REQUEST
PROJECT SPONSOR RECOMMENDATION****\$290,000
\$290,000****Project Description**

This study is located along the New Jersey Coast. The principal purposes of the study are to investigate shore protection/flood control and water quality problems attributed to natural and man-made conditions. The study will determine the effects of those conditions on man's activities in the coastal environment in an effort to reduce damages, improve coastal planning and engineering, reduce maintenance dredging of federal projects, improve water quality and alleviate coastal erosion. Additionally, the understanding of nearshore and estuarine environments and physical processes will assist New Jersey in identifying sources and trajectories for noxious floatable debris and spills of pollutants.

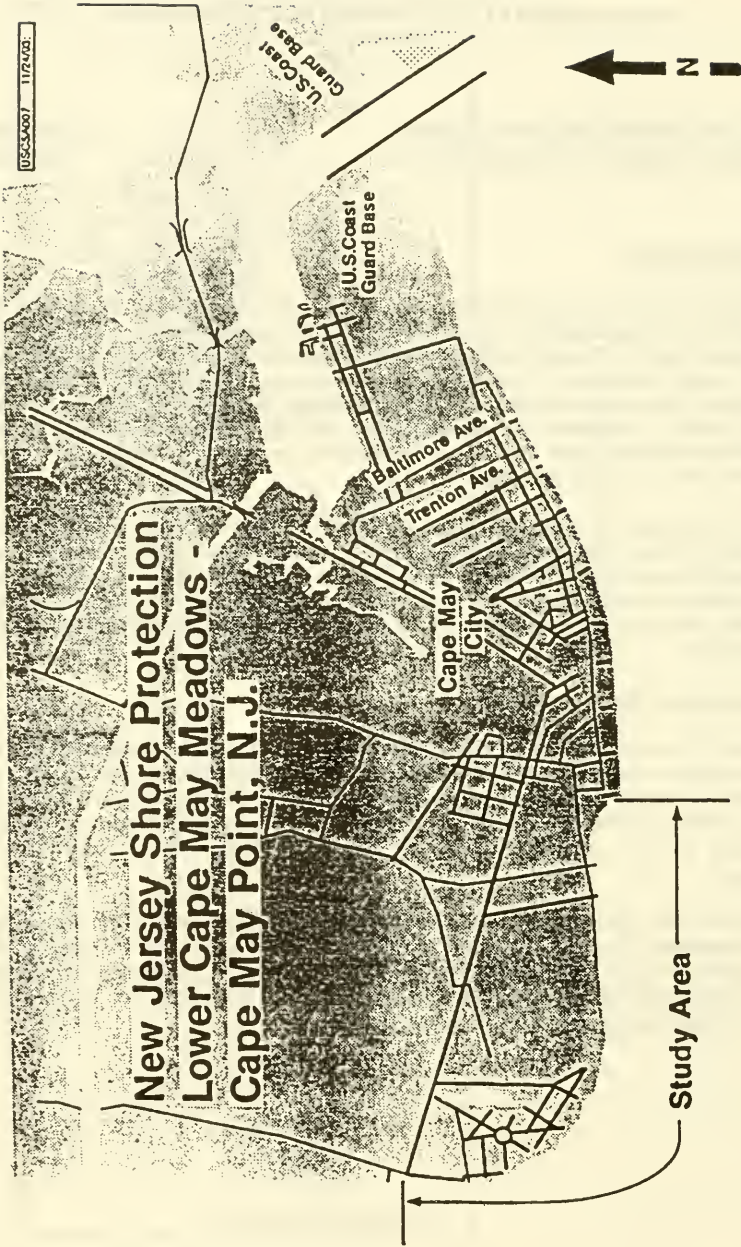
The principal purposes of the study are to investigate hurricane and shore damage problems attributed to natural and man-made conditions. The study will determine the effects of those conditions on man's activities in the coastal environment in an effort to alleviate coastal erosion. Additionally, the understanding of nearshore and estuarine environments and physical processes will assist New Jersey in identifying sources and trajectories for noxious floatable debris and spills of pollutants.

Project Sponsor Recommendation

A Limited Reconnaissance Report, New Jersey Shore Protection, was completed in Fiscal Year 1989 and recommended that a full reconnaissance study be conducted for this area. Storms over the past few years have heightened the erosion problems along the southern end of Ocean City and in Sea Isle and neighboring towns. Local jurisdictions have expressed interest in beginning this study due to the increasing vulnerability of the communities in the study area to storm damages.

Fiscal Year 1995 funds will be used to initiate the reconnaissance phase of the study at full Federal expense. The funds requested in Fiscal Year 1996 will be used to complete the reconnaissance report, negotiate a feasibility coast sharing agreement, and development an initial project management plan for a feasibility phase of the study. Therefore, we wish to support the FY'96 Budget Request of \$ 290,000 for this study.

USCSA007 11/24/02



**New Jersey Shore Protection
Lower Cape May Meadows -
Cape May Point, N.J.**

Study Area

Atlantic Ocean

**LOWER CAPE MAY MEADOWS, CAPE MAY POINT
NEW JERSEY
(STUDY)**

FY'96 PRESIDENT'S BUDGET REQUEST	\$350,000
PROJECT SPONSOR RECOMMENDATION	\$350,000

Project Description

The study area is located along the southern Atlantic Coast of New Jersey, extending approximately 2.5 miles to include Lower Cape May Meadows and the Borough of Cape May Point.

Lower Cape May Meadows is approximately 350 acres in an area and contains a State Park with important coastal freshwater wetlands which are vital resting areas for shorebirds and birds of prey during their seasonal migration along the Atlantic flyway. The Borough of Cape May Point, which is located at the western end of Lower Cape May Meadows, is a community of approximately 600 homes. The study will address restoration and protection of fish and wildlife habitat, and hurricane and storm damage prevention throughout the entire study area.

Project Sponsor Recommendation

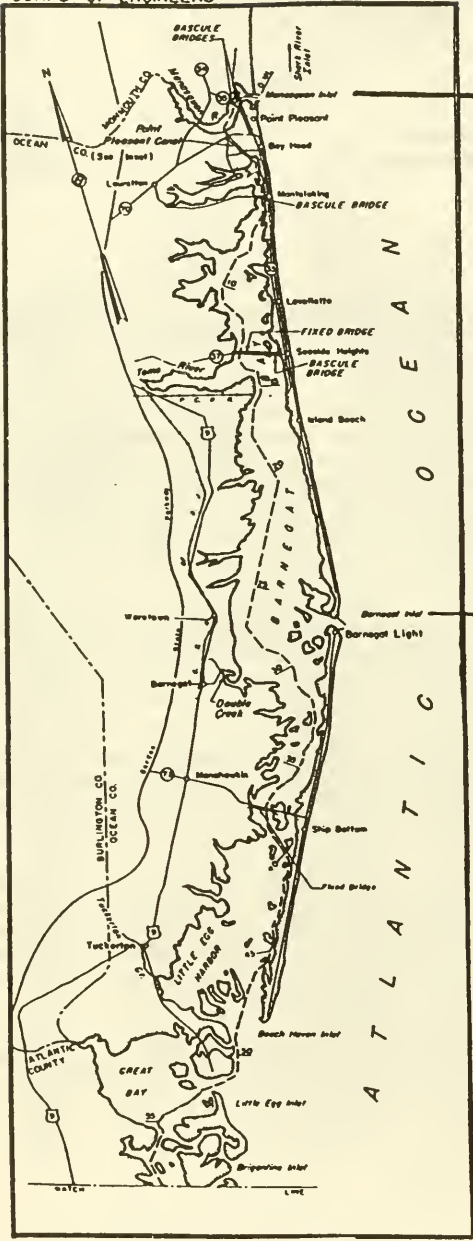
Fiscal Year 1995 funds will be used to continue the reconnaissance report at full federal expense. The funds requested for Fiscal Year 1995 will be used to complete the reconnaissance phase and initiate the feasibility phase of the study, including initiation of field data collection, hydraulic, economic and environmental studies.

Due to its unique and important location, strong support for this study has been expressed by federal, State and other resource agencies and organizations, including the U.S. EPA, USFWS, New Jersey Department of Environmental Protection, Ducks Unlimited, New Jersey Audobon Society and the Nature Conservancy, which is a major landholder.

Fiscal Year 1995 funds will be used to certify the Reconnaissance Report and to continue into the feasibility phase of the study, including field data collection and hydraulic, economic and environmental studies. The funds requested for fiscal Year 1996 will be used to continue feasibility studies and to indicate plan formulation. The preliminary estimated cost of the feasibility phase is \$ 1,500,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services.

We wish to support the FY'96 Budget Request of \$350,000 to fund this study to develop recommendations for the prevention of further water quality degradation and pollution of New Jersey coastal waters.

CORPS OF ENGINEERS



STUDY AREA

MANASQUAN INLET
TO
BARNEGAT INLET

**MANASQUAN INLET TO BARNEGAT INLET
NEW JERSEY
(STUDY)**

FY'96 PRESIDENT'S BUDGET REQUEST	\$290,000
PROJECT SPONSOR RECOMMENDATION	\$290,000

Project Description

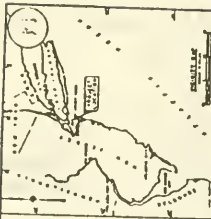
This study is located along the New Jersey coast. The principal purposes of the study are to investigate shore protection/flood control and water quality problems attributed to natural and man-made conditions. The study will determine the effects of those conditions on man's activities in the coastal environment in an effort to reduce damages, improve coastal planning and engineering, reduce maintenance dredging of federal projects, improve water quality and alleviate coastal erosion. Additionally, the understanding of nearshore and estuarine environments and physical processes will assist New Jersey in identifying sources and trajectories for noxious floatable debris and spills of pollutants.

The December 1992 storm produced the second highest water levels recorded at the Atlantic City New Jersey tide gage, resulting in structural damage and extensive beach and dune erosion and overwash. Damage which qualified for FEMA assistance totaled \$ 5.8 million for Ocean County. To the west of Long Branch Island are two of the largest bays along the New Jersey Coast, Barnegat Bay and Little Egg Harbor. Both bays are a significant source of fish, shellfish and recreation, as well as habitat for a variety of species of fish and wildlife, both migratory and native.

Project Sponsor Recommendation

A Limited Reconnaissance Report, New Jersey Shore Protection, was completed in FY'89 and recommended full reconnaissance study for this location. Recent storm activity, particularly following the December 1992 northeaster, caused considerable erosion within the study area and has heightened the vulnerability of local communities to storm damages. The New Jersey Department of Environmental Protection and the local communities have expressed interest in initiating this study.

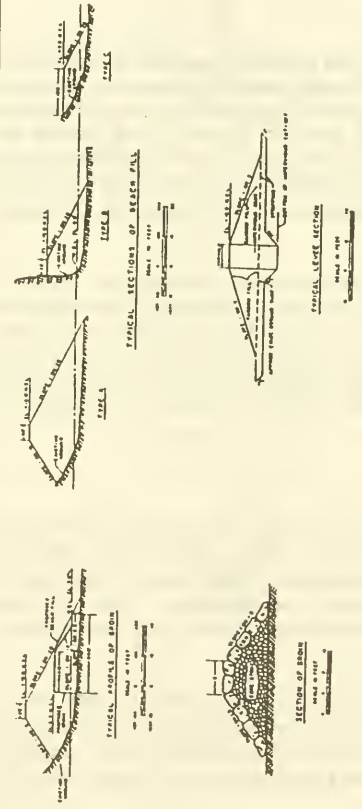
Funds were added to the FY 95 budget for this study. Fiscal Year 1995 funds will e used to initiate the reconnaissance phase of the study at full Federal expense. We therefore wish to request an FY'96 appropriation of \$290,000 to initiate the Reconnaissance report, negotiate a feasibility cost sharing agreement and develop an initial project management plan for the feasibility phase of the study.



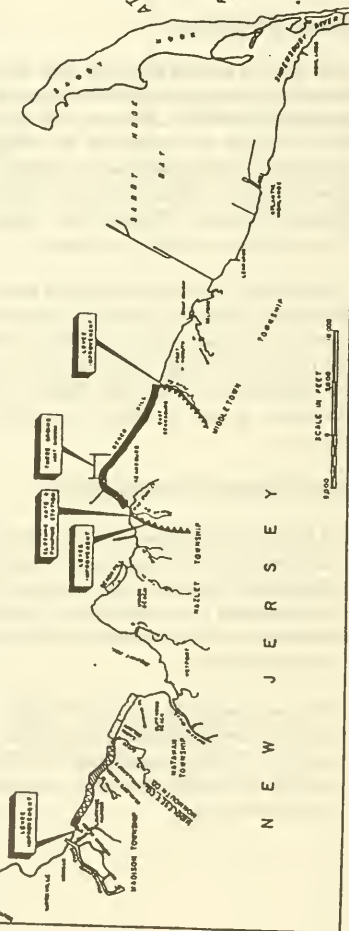
LEGEND

LEVEES
 AAAAA BEACH FILL TO 50 FEET ELEVATION
 BBBBB BEACH FILL TO 60 FEET ELEVATION
 CCCCC BEACH FILL TO 70 FEET ELEVATION
 DDDDD BEACH FILL TO 80 FEET ELEVATION
 EEEEE BEACH FILL TO 90 FEET ELEVATION
 FFFFF BEACH FILL TO 100 FEET ELEVATION
 GGGGG BEACH FILL TO 110 FEET ELEVATION
 HHHHH BEACH FILL TO 120 FEET ELEVATION
 IIIII BEACH FILL TO 130 FEET ELEVATION
 JJJJJ BEACH FILL TO 140 FEET ELEVATION
 KKKKK BEACH FILL TO 150 FEET ELEVATION
 LLLLL BEACH FILL TO 160 FEET ELEVATION
 MMMMM BEACH FILL TO 170 FEET ELEVATION
 NNNNN BEACH FILL TO 180 FEET ELEVATION
 OOOOO BEACH FILL TO 190 FEET ELEVATION
 PPPPP BEACH FILL TO 200 FEET ELEVATION
 QQQQQ BEACH FILL TO 210 FEET ELEVATION
 RRRRR BEACH FILL TO 220 FEET ELEVATION
 SSSSS BEACH FILL TO 230 FEET ELEVATION
 TTTTT BEACH FILL TO 240 FEET ELEVATION
 UUUUU BEACH FILL TO 250 FEET ELEVATION
 VVVVV BEACH FILL TO 260 FEET ELEVATION
 WWWWW BEACH FILL TO 270 FEET ELEVATION
 XXXXX BEACH FILL TO 280 FEET ELEVATION
 YYYYY BEACH FILL TO 290 FEET ELEVATION
 ZZZZZ BEACH FILL TO 300 FEET ELEVATION

FLOOD CONTROL PROJECT
 BAHAMAS BAY AND SANDY HOOK BAY, N. J.
 BEACH EROSION AND HURRICANE PROTECT
 GENERAL PLAN AND SECTIONS
 20 OCTOBER 1964
 NEW JERSEY DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 400 WEST WASHINGTON STREET
 TRENTON, NEW JERSEY 08646
 MAP 47197



OCEAN



N E W J E R S E Y

**RARITAN BAY AND SANDY HOOK BAY, NEW JERSEY
(STUDY)**

FY'96 PRESIDENT'S BUDGET REQUEST	\$620,000
PROJECT SPONSOR RECOMMENDATION	\$620,000

Project Description

The study area is experiencing flooding caused by both rainfall and coastal storm inundation. This problem has worsened in recent years due to the loss of protective beaches and increased urbanization in the area, with structures susceptible to flooding from rainfall and coastal storm surges, erosion and wave attack, combined with restrictions to channel flow in the tidal creeks. This problem is further intensified due to the lack of any significant drainage slope. Probable solutions to this problem would be extensions and/or improvements on the existing project, which currently provides segmented storm and hurricane damage protection for a few communities in the form of beachfills, dunes, levees, tidegates and appurtenant features. Strong local and State support for a region-wide solution to the problems exists.

Project Sponsor Recommendation

The purpose of the study is to determine the advisability of hurricane and storm damage reduction improvements for the Raritan Bay and Sandy Hook Bay shore. The feasibility cost-sharing agreement was executed on December 30, 1993 with the New Jersey Department of Environmental Protection.

Fiscal Year 1995 funds are being used to continue the feasibility phase of the study, including performing engineering and economic analyses, and environmental impact investigations for the first interim study at Port Monmouth. The funds requested for Fiscal Year 1996 will be used to continue the feasibility phase of the study, including engineering and economic analyses and environmental baseline investigations for the interim studies at Port Monmouth, Leonardo and Union Beach.

We wish to support the Fiscal Year 1996 Budget Request of \$620,000 to continue the feasibility phase of this study.

RARITAN BAY AND SANDY HOOK BAY, CLIFFWOOD BEACH
NEW JERSEY
(STUDY)

FY'96 PRESIDENT'S BUDGET REQUEST	\$52,000
PROJECT SPONSOR RECOMMENDATION	\$52,000

Project Description

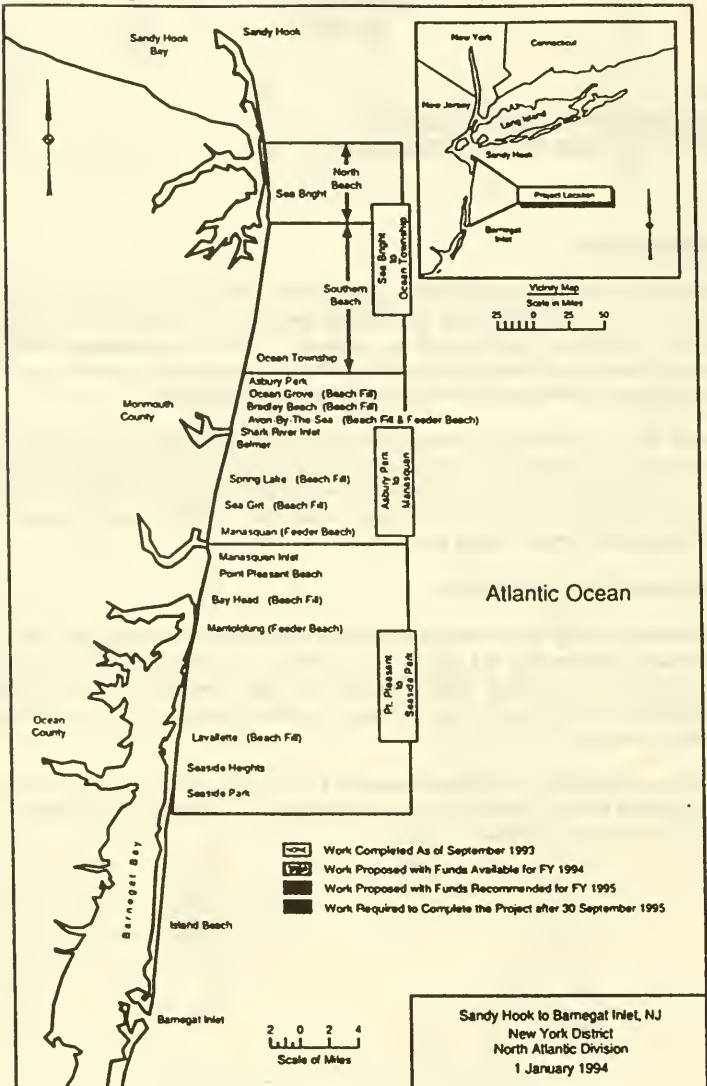
Section 934 of the Water Resources Development Act of 1986 grants the Corps of Engineers the authority to study completed Beach Nourishment projects for a period of up to 50 years to determine if additional improvements are required. The post-authorization revisit would determine whether or not there are high priority federal benefits to justify new work and warrant federal funding to resume nourishment of these important coastal works.

Cliffwood Beach is located in Aberdeen Township, New Jersey between Matawan Point and Whale Creak along Raritan Bay. The authorized project provided for shore protection with beach fill. Tidal flooding and beach erosion progressively threaten the protective beaches and nearby residential areas at Cliffwood Beach. A locally constructed seawall is also threatened from the loss of the remaining beach fronting the structure.

Project Sponsor Recommendation

A reconnaissance study will be initiated in June 1995 which will review the project under current Federal participation criteria and current site conditions. If Federal interest still exists, a cost shared feasibility study would follow, which would fully investigate a range of applicable alternative plans and develop detailed designs, of a selected plan, to reduce the storm damage potential to the area.

We wish to support the FY'96 Budget request of \$ 52,000. This amount, added to the \$268,000 carry over from FY'95, will allow the Corps of Engineers to complete the Reconnaissance study of the beachfill project at Cliffwood Beach.



**SANDY HOOK TO BARNEGAT INLET
NEW JERSEY
(CONSTRUCTION)**

FY'96 PRESIDENT'S BUDGET REQUEST	\$15,700,000
PROJECT SPONSOR RECOMMENDATION	\$15,700,000

Project Description

The overall project area lies along the Atlantic Ocean Shoreline of New Jersey in Monmouth and Ocean Counties between Sandy Hook to the north and Barnegat Inlet to the south.

Erosion has seriously reduced the width of most beaches in the study area, with consequent exposure of shore to storm damage. The State of New Jersey and majors of the affected communities area also very concerned over the increased potential for damages to residential and commercial structures.

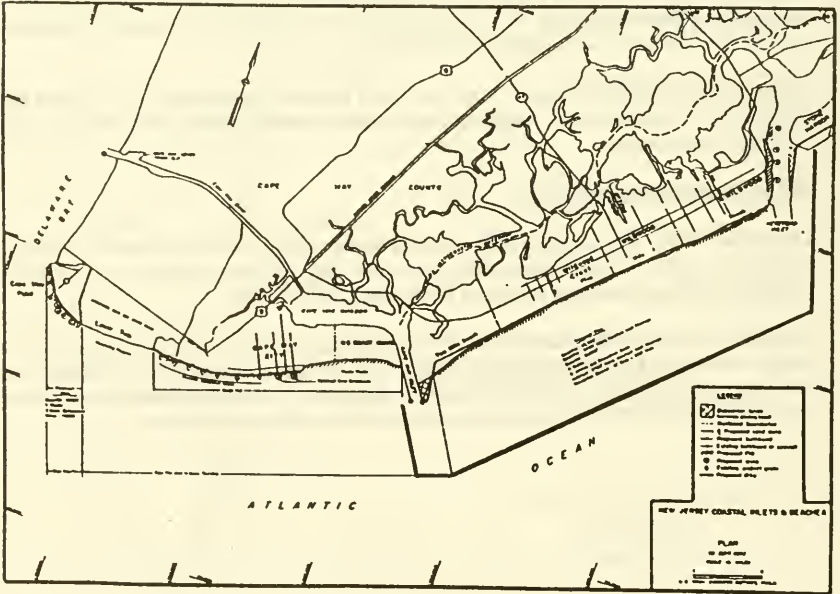
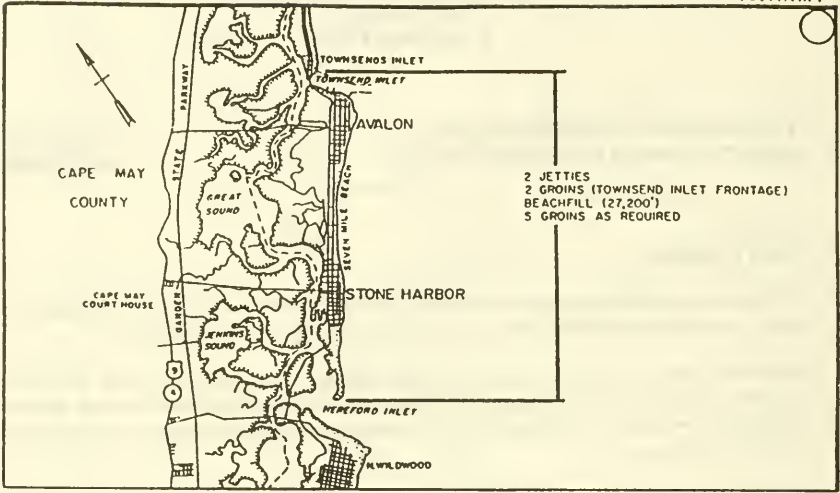
The March 1962 storm caused \$31,000,000 in damages (based on today's dollars) along the 25-mile stretch of shore from Sandy Hook to Manasquan Inlet. Subsequent emergency restoration works in this reach cost over \$7 million (in 1987 dollars).

Improvements to Section I include 12 miles of beach placement, construction of 23 groins and extension of 14 existing groins. Section II also suffers from eroding beaches and calls for beach placement over nine miles.

Project Sponsor Recommendation

The urgency of this project results from even less beachfront being in place today as a result of erosion and storms. Local communities are fearful that the next coastal storm would be catastrophic with increased risk for coastal flooding from storm surges.

The State of New Jersey has stated its support for this project, and we wish to support the FY'96 Budget Request of \$15,700,000 for this project. This funding will provide \$25,000,000 to the total construction program, as this figure includes programmed unobligated carryover scheduled to be expended in FY'96 to continue the construction phase of this improvement.



**TOWNSEND INLET TO CAPE MAY INLET
NEW JERSEY
(STUDY)**

**FY'96 PRESIDENT'S BUDGET REQUEST
PROJECT SPONSOR RECOMMENDATION**

**\$80,000
\$80,000**

Project Description

The study area is a 12-mile portion of South Jersey Coastline from TOWNSEND Inlet to Cape May Inlet. The principal purposes of the study are to investigate shore protection/flood control and water quality problems attributed to natural and man-made conditions. The study will determine the effects of those conditions on man's activities in the coastal environment in an effort to reduce damages, improve coastal planning and engineering, reduce maintenance dredging of federal projects, improve water quality and alleviate coastal erosion. Additionally, the understanding of nearshore and estuarine environments and physical processes will assist New Jersey in identifying sources and trajectories for noxious floatable debris and spills of pollutants.

Project Sponsor Recommendation

Fiscal Year 1995 funds are being used to continue the feasibility phase studies principally related to detail plan formulation, economic and environmental analyses. Fiscal Year 1996 funds will be used to prepare the draft report and environmental impact statement. The estimated cost of the feasibility study is \$2,100,000, which is to be shared on a 50/50 basis by federal and non-federal interests. Up to one-half of the non-federal share may be in-kind services.

We therefore wish to support the Fiscal Year 1996 Budget Request of \$80,000 for this project. The State of New Jersey Department of Environmental Protection has signed the feasibility study cost-share agreement for this project and has the funding to proceed.

PLANNING ASSISTANCE

SECTION 22, P.L. 93-251, NEW JERSEY PLANNING ASSISTANCE (STUDY)



SECTION 22, P.L. 93-251, NEW JERSEY PLANNING ASSISTANCE
(STUDY)FY'96 PRESIDENT'S BUDGET REQUEST
PROJECT SPONSOR RECOMMENDATION\$ -0-
\$300,000Project Description

Section 22 of the Water Resources Development Act of 1974 provides authority for the Corps of Engineers to assist the states in preparation of comprehensive plans for the development, utilization and conservation of water and related land resources. Assistance is provided on the basis of state requests, and eligibility is determined by the objectives of the state studies. Consequently, the state must have a planning program either underway or characterized in sufficient detail so that the validity of its request may be appraised. In addition, only that assistance which can be undertaken by Corps personnel may be provided.

In accordance with P.L. 99-662, state allotments from the nationwide appropriation are limited to \$300,000 annually, but may be less depending upon the needs of individual states. The program may encompass many types of studies, including water supply, water quality, water conservation, hydropower development, flood control, erosion and navigation. Typical studies are at a reconnaissance level of detail.

Project Sponsor Recommendation

This project was established to provide planning assistance to states. Funds requested are to be utilized by the Corps of Engineers to perform engineering evaluations of water resource problems within the State of New Jersey.

This planning program has provided meaningful levels of funding for which New Jersey is most appreciative. However, there are several planning projects for which we wish to request funds in FY'96 through this program. The total funds requested for these proposed studies is \$300,000, and the State of New Jersey is prepared to financially participate as may be necessary to secure these funds.

OPERATION AND MAINTENANCE

BARNEGAT INLET, NJ (NAVIGATION)

CHEESEQUAKE CREEK, NJ (NAVIGATION)

COLD SPRING INLET, NJ (SHORE PROTECTION)

DELAWARE RIVER AT CAMDEN, NJ (NAVIGATION)

DELAWARE RIVER, PHILADELPHIA TO THE SEA, NJ, PA & DE (NAVIGATION)

DELAWARE RIVER, PHILADELPHIA, PA TO TRENTON, NJ (NAVIGATION)

NEW JERSEY INTRACOASTAL WATERWAY, NJ (NAVIGATION)

NEW YORK AND NEW JERSEY CHANNELS, NY (NAVIGATION)

NEW YORK HARBOR, DRIFT REMOVAL, NY & NJ (NAVIGATION)

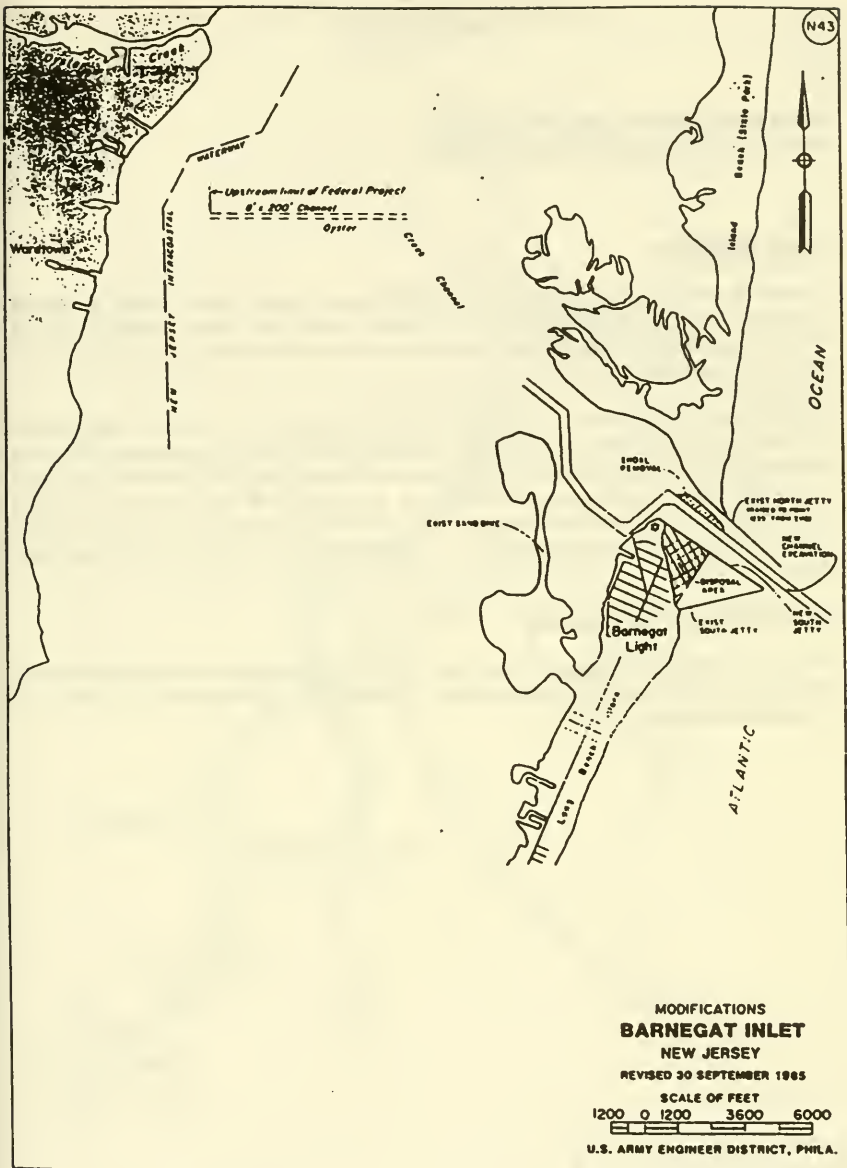
PROMPTON LAKE, PA (FLOOD CONTROL AND WATER SUPPLY)

SALEM RIVER, NJ (NAVIGATION)

SHARK RIVER, NJ (NAVIGATION)

TOMS RIVER, NJ (NAVIGATION)

FRANCIS E. WALTER DAM, PA (FLOOD CONTROL AND WATER SUPPLY)



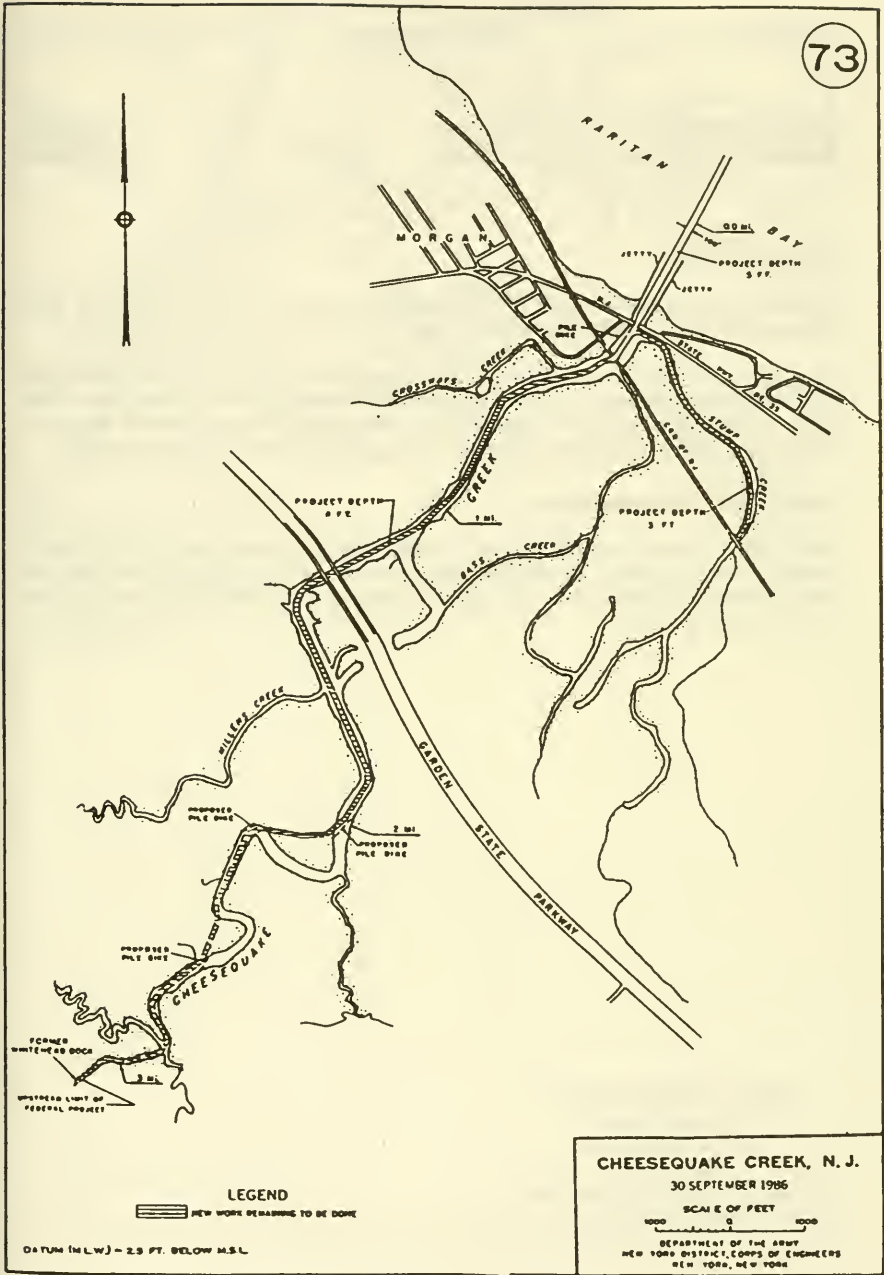
**BARNEGAT INLET NEW JERSEY
(NAVIGATION)****FY'96 PRESIDENT'S BUDGET REQUEST
PROJECT SPONSOR RECOMMENDATION****\$1,455,000
\$1,455,000****Project Description**

Channel shoaling, wave activity and numerous marine hazards have created dangerous navigational problems at the Barnegat Inlet in Ocean County, New Jersey. These are serious shortcomings that impose limitations on the effectiveness of safe access through an inlet with over 800,000 annual transits.

This existing project provides for a channel 8 ft. deep through the inlet and 10 ft. deep through the outer bar, a channel of suitable hydraulic characteristics extending in a northwesterly direction from the gorge in the Inlet to Oyster Creek Channel and through the latter channel to deep water in the Bay, and the maintenance of a channel 8 ft. deep and 200 ft. wide to connect Barnegat Light Harbor with the main inlet channel. The project also provides for protecting the inlet channel with two converging stone jetties. The project length is about 4.5 miles and was completed in 1940.

Project Sponsor Recommendation

We wish to express our support for the Fiscal Year 1996 appropriation of \$1,455,000 for the much needed maintenance work on this project. The Final Environmental Impact Statement was completed in September 1981.



LEGEND

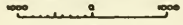
 NEW WORK REMAINING TO BE DONE

DATUM (M.L.W.) - 2.5 FT. BELOW M.S.L.

CHEESEQUAKE CREEK, N. J.

30 SEPTEMBER 1936

SCALE OF FEET



DEPARTMENT OF THE ARMY
NEW YORK DISTRICT CORPS OF ENGINEERS
NEW YORK, NEW YORK

**CHEESEQUAKE CREEK NEW JERSEY
(NAVIGATION)****FY'96 PRESIDENT'S BUDGET REQUEST
PROJECT SPONSOR RECOMMENDATION****\$2,590,000
\$2,590,000****Project Description**

This project includes three channels with varying depths from 3 ft. to 5 ft., two parallel stone jetties and pike dikes to protect the channel.

The project is about 45 percent complete. The last work done in carrying out the project was in 1884. Maintenance dredging has been done several times since then. The unfinished parts of the project are dredging a channel 4 ft. deep and 50 to 100 ft. wide between the railroad bridge and the head of navigation, including the construction of three dikes, and dredging in Stump Creek.

Project Sponsor Recommendation

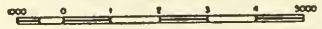
This is one of several navigation projects in New Jersey that require funds for maintenance dredging in Fiscal year 1996. Therefore, we wish to express our support for the Fiscal Year 1996 Budget Request of \$2,590,000 for the continued operation and maintenance of this important commercial fishing channel.



**COLD SPRING INLET
NEW JERSEY**

REVISED 30 SEPT 1964

SCALE OF FEET



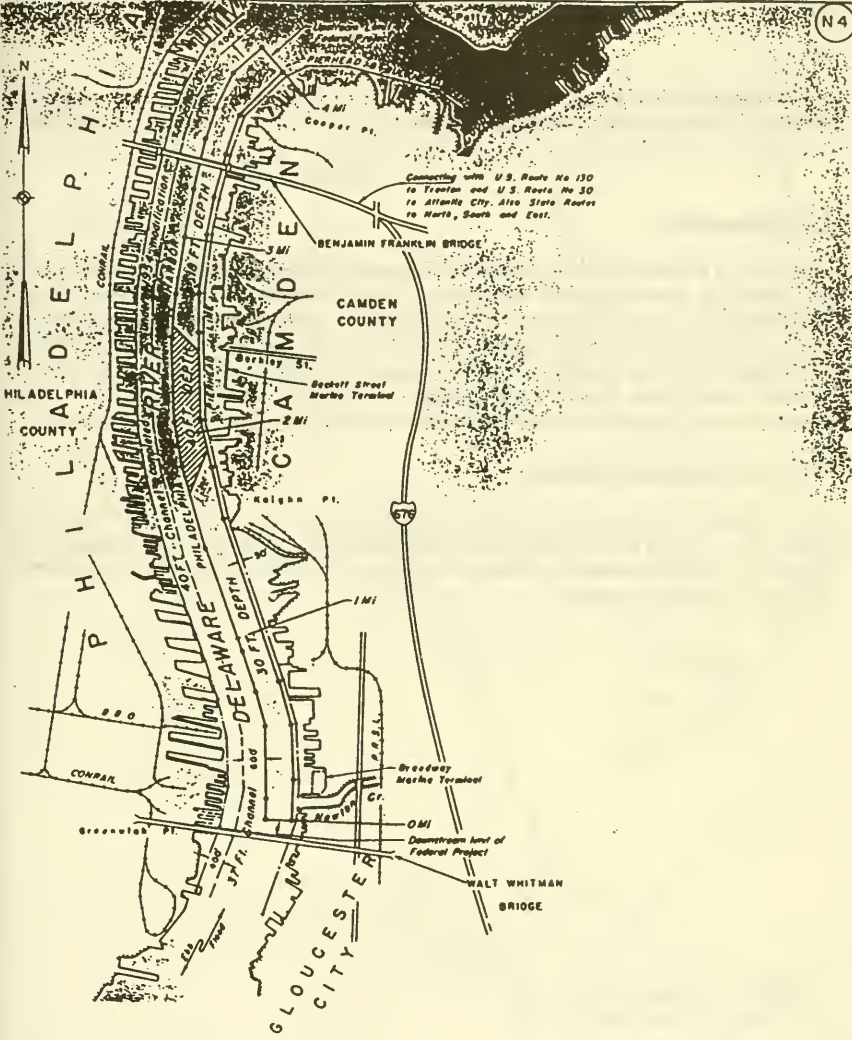
U.S. ARMY ENGINEER DISTRICT, PHILA.

**COLD SPRING INLET NEW JERSEY
(NAVIGATION)****FY'96 PRESIDENT'S BUDGET REQUEST
PROJECT SPONSOR RECOMMENDATION****\$485,000
\$485,000****Project Description**

This channel project, adopted in 1907 and modified in 1945, provides for an entrance channel 25 ft. deep and 400 ft. wide, protected by two parallel stone jetties, and extending from the 25 ft. depth curve in the ocean to a line 500 ft. harborward of a line joining the inner ends of the jetties; thence 20 ft. deep and 300 ft. wide to deep water in Cape May Harbor. The total length of the section included in the project is about 2 1/4 miles.

Project Sponsor Recommendation

We wish to express our support for the Fiscal year 1996 Budget Request of \$485,000 for the continued Operation and Maintenance of this inlet channel project. The Final Environmental Impact Statement was completed in September 1975. Work proposed is adequately addressed in the EIS, with dredged material to be disposed of in open water and upland areas.



DELAWARE RIVER
IN THE VICINITY OF CAMDEN, N.J.

REVISED 30 SEPTEMBER 1988

SCALE OF FEET



U. S. ARMY ENGINEER DISTRICT, PHILA.

AREA WHERE REV WORK REMAINS TO BE DONE SHOWN THUS:

DELAWARE RIVER AT CAMDEN NEW JERSEY
(NAVIGATION)

FY'96 PRESIDENT'S BUDGET REQUEST	\$850,000
PROJECT SPONSOR RECOMMENDATION	\$850,000

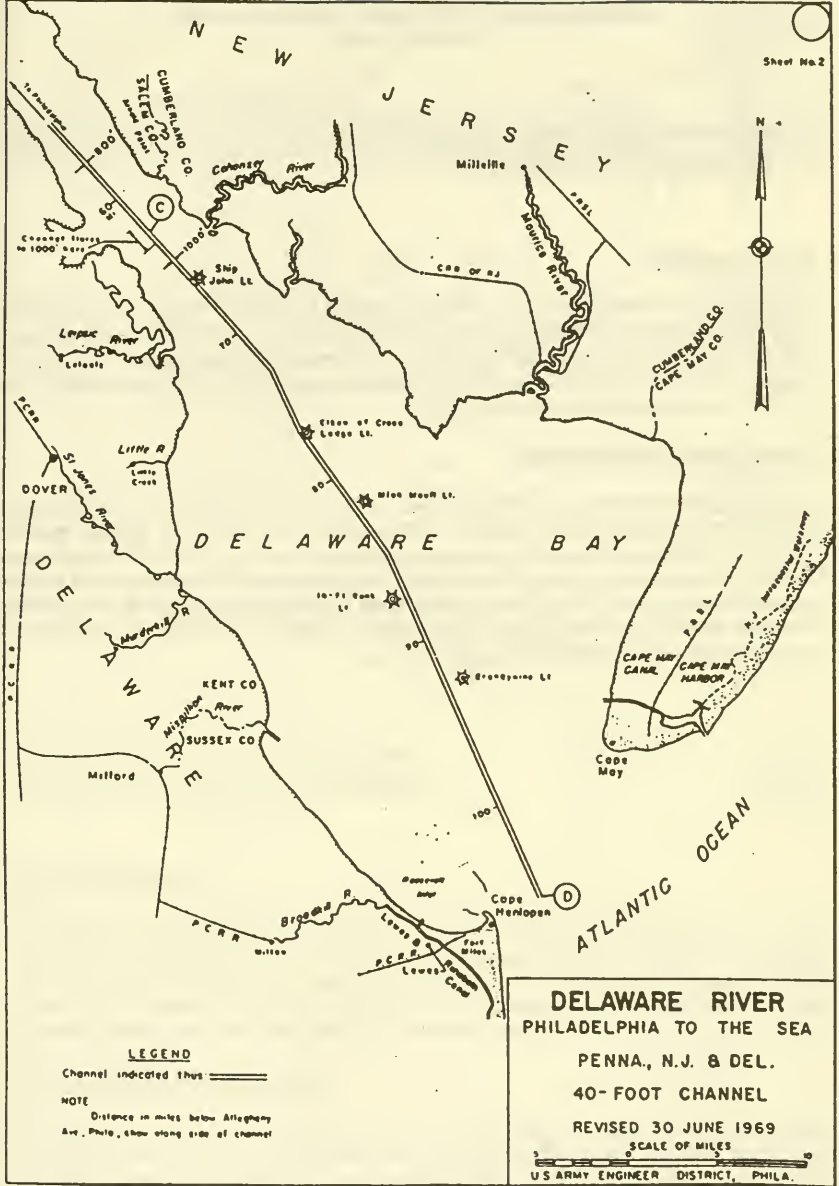
Project Description

This project is located adjacent to the east channel edge of the Delaware River, Philadelphia to the Sea project at Camden Marine and Beckett Street Terminals in Camden, New Jersey. Maintenance of the approach apron in the Delaware River leading to Beckett Street Terminal to 40 ft. This approach channel has lengths of 4,400 ft. along the east edge of the 40 ft. by 400 ft. "Philadelphia to the Sea" project, and 1,450 ft. along a line parallel with and 50 ft. west of the existing pierhead line at Beckett Street Terminal. The width of the channel is 1,100 ft. The approach angle is 45 degrees from the south and the departure angle is 45 degrees to the north.

Project Sponsor Recommendation

We are pleased to see this project included in this year's Budget Request and wish to express our support for a Fiscal Year 1996 appropriation of \$850,000 for the operation and maintenance of this project. This improvement is critical to the operation of the South Jersey Port Corporation's Beckett Street Marine Terminal.

Sheet No. 2



DELAWARE RIVER, PHILADELPHIA TO THE SEA
PENNSYLVANIA, NEW JERSEY AND DELAWARE
(NAVIGATION)

FY'96 PRESIDENT'S BUDGET REQUEST
PROJECT SPONSOR RECOMMENDATION

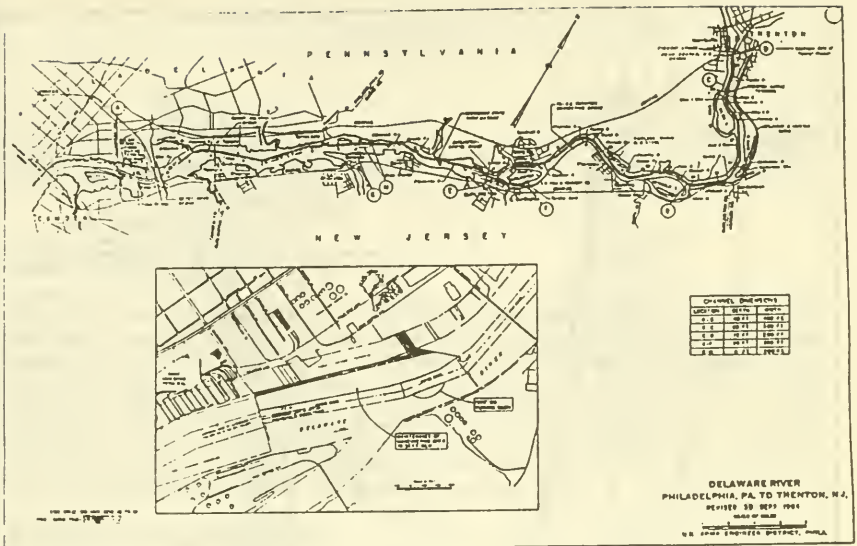
\$18,157,000
\$18,157,000

Project Description

The existing project was authorized in 1910 and modified in 1930, 1938, 1945, 1954 and 1958. The project provides for a 95.6 mile channel from Allegheny Avenue, Philadelphia to deep water in Delaware Bay, for six anchorages, and for construction of dikes, and training works for the regulation and control of tidal flow. Project dimensions vary from 37-40 ft. deep and 800-1,000 ft. wide. The project has not been completed.

Project Sponsor Recommendation

The Final Environmental Impact Statement was submitted in November 1975. Diked upland areas and an overboard site in Delaware Bay are utilized for disposal of dredged material. Methods of dredging and disposal are adequately addressed in the EIS. The FY'96 Budget figure provides for much needed continued maintenance dredging between Philadelphia to the Sea and we are pleased to see \$ 18,157,000 included in the FY'96 Budget Request for this critically important operation and maintenance channel project. Three states benefit from this project, which provides access to their regional ports.



**DELAWARE RIVER, PHILADELPHIA, PENNSYLVANIA
TO TRENTON, NEW JERSEY
(NAVIGATION)**

**FY'96 PRESIDENT'S BUDGET REQUEST
PROJECT SPONSOR RECOMMENDATION**

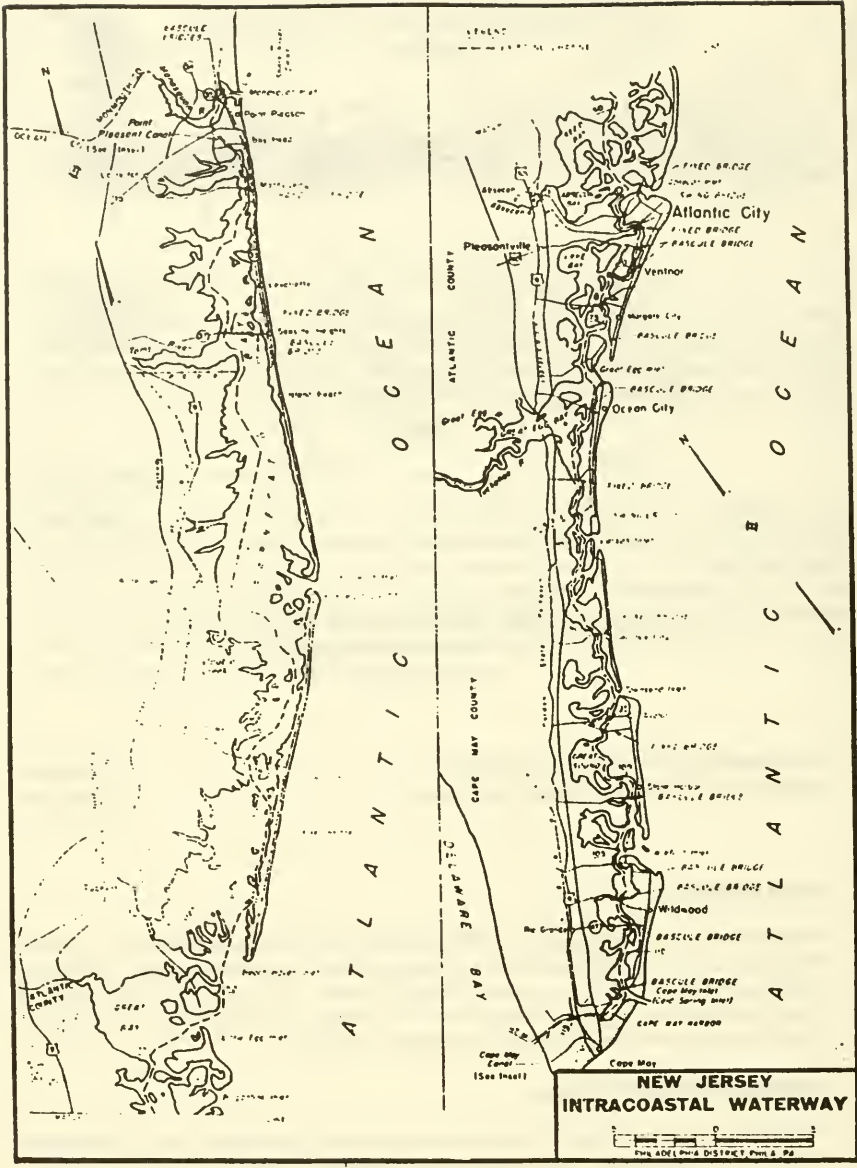
**\$1,255,000
\$1,255,000**

Project Description

Adopted in 1930 and modified in 1935, 1937, 1946 and 1954, this project provides for a channel and turning basins in the Delaware River, bank protection and bridge reconstruction. The project dimensions vary from 35-40 ft. deep and 300-400 ft. wide. The project has been completed except for deepening the channel from 25 to 35 ft. between Newbold Island and the Trenton Marine Terminal, which has been placed in the deferred category.

Project Sponsor Recommendation

The Final Environmental Impact Statement was completed in November 1975. Maintenance dredging is performed under Government contract, generally by hydraulic dredges, with disposal in diked, upland areas supplied by the Commonwealth of Pennsylvania and the State of New Jersey. We wish to express our support for a Fiscal Year 1996 Budget appropriation of \$1,255,000 which will provide funds necessary to continue the contract for maintenance dredging of this project.



NEW JERSEY INTRACOASTAL WATER (NJIWW)
(NAVIGATION)

FY'96 PRESIDENT'S BUDGET REQUEST	\$3,729,000
PROJECT SPONSOR RECOMMENDATION	\$3,729,000

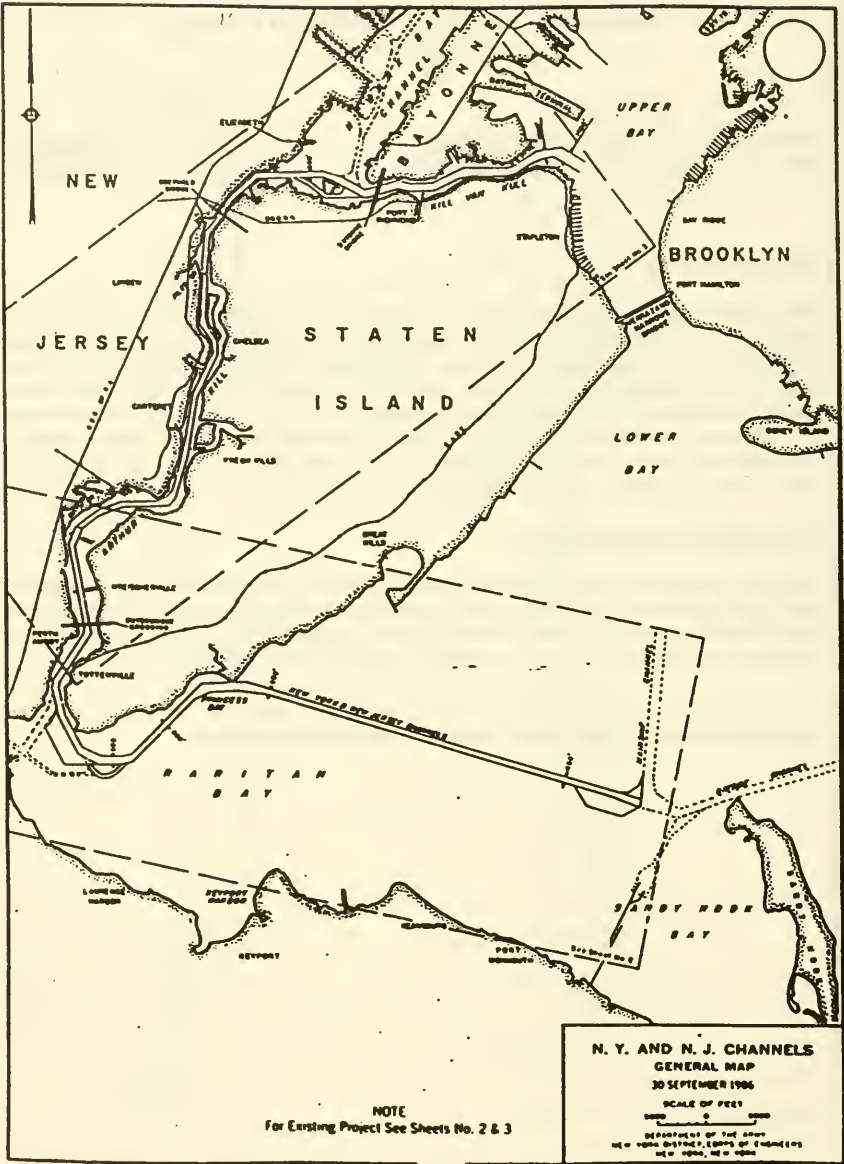
Project Description

This project was adopted by the Rivers and Harbors Act approved March 2, 1945. This waterway, a sea-level inland water route approximately parallel with the New Jersey coast, extends from the Atlantic Ocean at Manasquan Inlet, about 26 miles south of Sandy Hook, New Jersey to the Delaware River, about three miles north of Cape May Point. The water extends through the inlet and up Manasquan River a distance of about two miles, and thence through Point Pleasant Canal, about two miles to the head of Barnegat Bay. It then passes through a series of bays, lagoons and thorofares along the New Jersey coast to Cape May Harbor, and thence across Cape May County to Delaware Bay (Cape May Canal).

Project Sponsor Recommendation

The final Environmental Impact Statement was submitted on 12 September 1975. Maintenance Dredging is performed under Government contract by hydraulic dredge with disposal in open water areas on diked upland sites. Disposal areas are furnished by the State of New Jersey. Disposal sites to be used are directly coordinated with Federal and State agencies.

We wish to express our support for a Fiscal year 1996 Budget request of \$3,729,000, which will provide funds needed to maintain this important navigation channel project.



NOTE
For Existing Project See Sheets No. 2 & 3

N. Y. AND N. J. CHANNELS
GENERAL MAP
30 SEPTEMBER 1906
 SCALE OF FEET
 0 1000
 DEPARTMENT OF THE ARMY
 NEW YORK DISTRICT, ENGINEERING DIVISION
 NEW YORK, N. Y.

**NEW YORK AND NEW JERSEY CHANNELS
(NAVIGATION)**

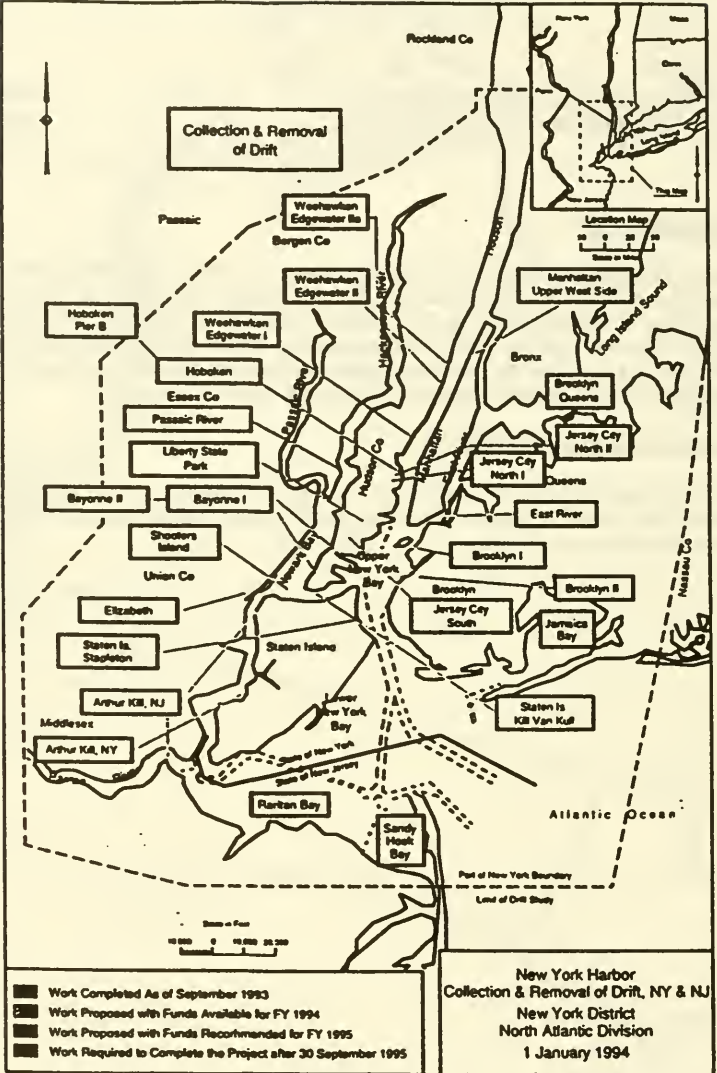
FY'96 PRESIDENT'S BUDGET REQUEST	\$205,000
PROJECT SPONSOR RECOMMENDATION	\$205,000

Project Description

This project includes a channel 37 ft. deep in rock and 35 ft. deep in soft material, 600 ft. wide through Lower New York Bay, Raritan Bay, and Arthur Kill to the junction of the channel into Newark Bay. The existing Kill Van Kull Channel is authorized for deepening to 45 ft. from the vicinity of Shooter Island and junction with Newark Bay through the Kill Van Kull to Constable Hook, then to a point near the intersection along the New Jersey Pierhead line through Kill Van Kull to Upper New York Bay. The length of the project is about 31.0 miles.

Project Sponsor Recommendation

We wish to express our support for the Fiscal Year 1996 Budget Request of \$205,000, which will provide funds needed to dredge and maintain these federal navigation channels critical to our ports competitiveness and access.



NEW YORK HARBOR DRIFT REMOVAL
NEW YORK AND NEW JERSEY
(NAVIGATION)

FY'96 PRESIDENT'S BUDGET REQUEST	\$4,886,000
PROJECT SPONSOR RECOMMENDATION	\$4,886,000

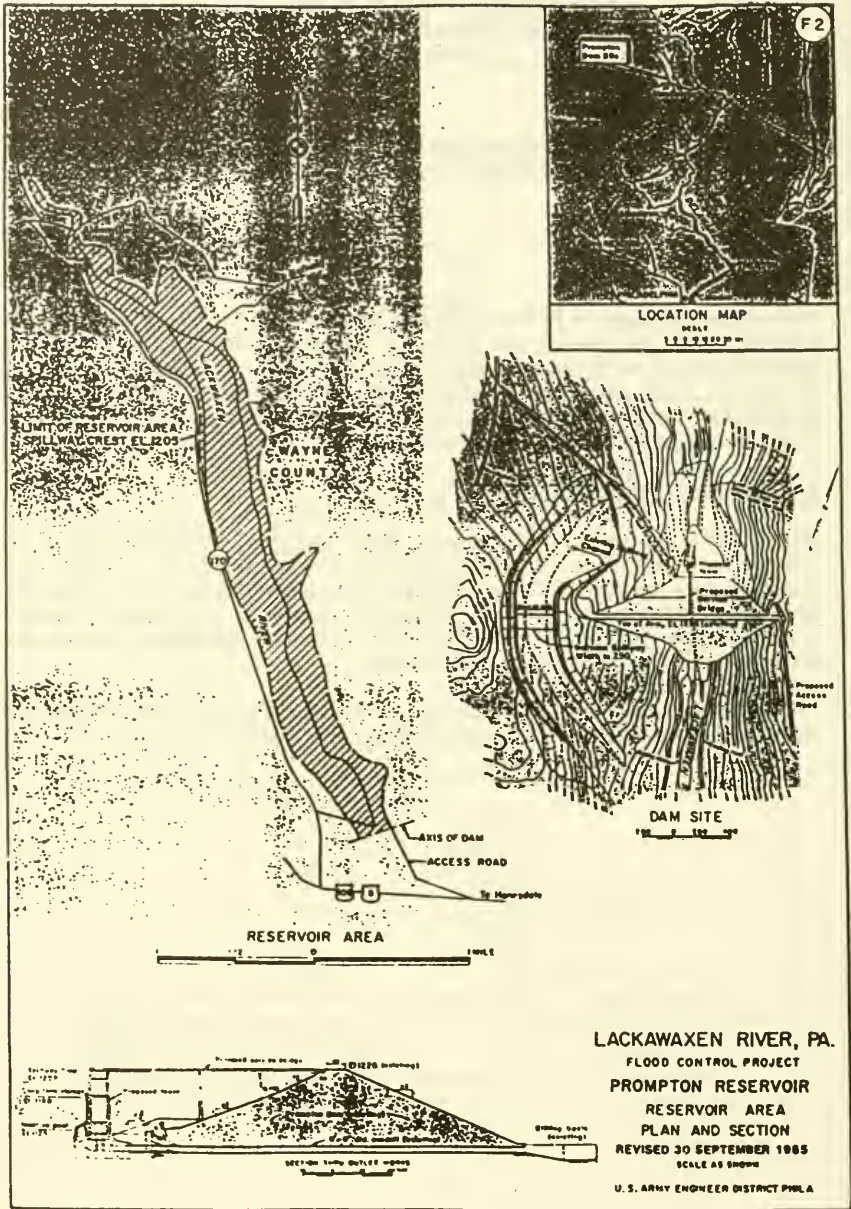
Project Description

The project was authorized in 1915 and modified in 1917 and 1930. The project, as adopted and modified, provides for collection and removal of floating drift which presents a hazard to navigation in New York Harbor and tributary waters. The project, as modified in 1974, includes the collection of drift and the removal of sources of drift such as derelict vessels, deteriorated shore structures and loose debris along the shores of New York Harbor and tributary waters. The project also requires the repair of structures still in use.

Project Sponsor Recommendation

Floating drift is collected daily. The operation of this continuing project has resulted in the collection and removal of some 30 million cubic ft. of floating drift since 1915. Removal of drift sources has been completed at Liberty State Park, Elizabeth and Hoboken in New Jersey and Manhattan (East River) and Stapleton, S.I. in New York. Removal of drift is presently underway in Jersey City, New Jersey and Brooklyn, New York. Preconstruction planning is underway for the removal of sources of drift in several other reaches.

We wish to express support for the Fiscal Year 1996 President's Budget Request of \$4,886,000 for the continued operation and maintenance of this important project.



LACKAWAXEN RIVER, PA.

FLOOD CONTROL PROJECT
 PROMPTON RESERVOIR

RESERVOIR AREA
 PLAN AND SECTION

REVISED 30 SEPTEMBER 1965
 SCALE AS SHOWN

U. S. ARMY ENGINEER DISTRICT PHILA

PROMPTON LAKE, PENNSYLVANIA
(FLOOD CONTROL AND WATER SUPPLY)

FY'96 PRESIDENT'S BUDGET REQUEST
PROJECT RECOMMENDATION

\$463,000
\$463,000

Project Description

Prompton Lake, a flood control and water supply project, is located on the Lackawaxen River, approximately 30 miles from the confluence of the Lackawaxen and Delaware Rivers in northeast Pennsylvania. The present dam extends to a maximum height of 140 ft. above the stream bed.

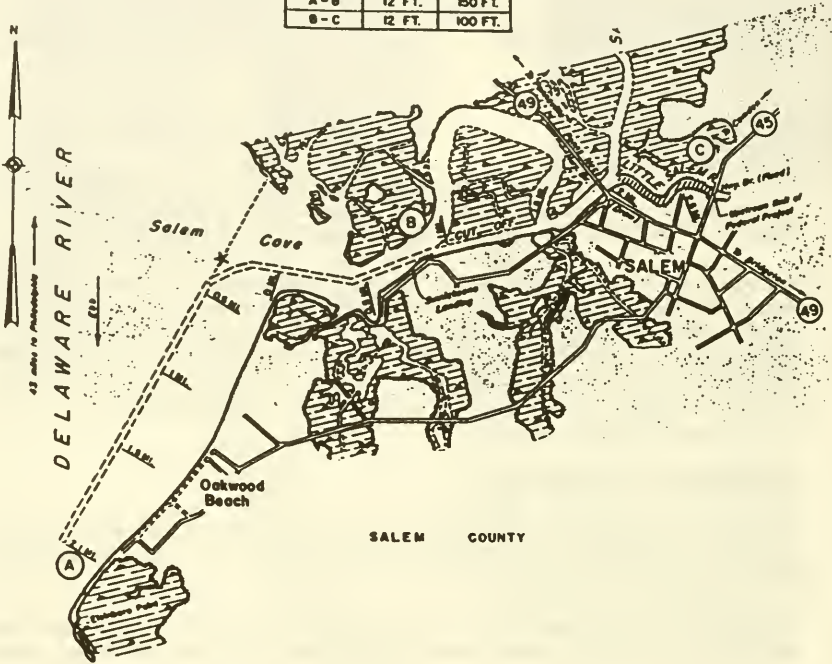
Prompton Reservoir controls the runoff from a drainage area of about 60 square miles and storage capacity for flood control. The authorized modification to Prompton would provide an active long-term storage of approximately nine billion gallons of new water supply to the Delaware River Basin region. Two recent drought emergencies in the Delaware River Basin give emphasis to the early need for additional supplies of water. This project has been authorized by the Water Resource Development Act of 1986 and is included as part of the Comprehensive Plan of the Delaware River Basin Commission.

Project Sponsor Recommendation

While listed as a Pennsylvania project, this project also aids the states of Delaware, New Jersey and New York, which are represented jointly (along with the U.S. Department of the Interior) in the 1961 Delaware River Basin Compact.

We wish to support the Fiscal Year 1996 Budget Request of \$463,000 for the operation and maintenance of this project, which contributes to the flood control and water supply storage capacity of the entire four state region.

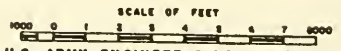
CHANNEL DIMENSIONS		
LOCATION	DEPTH	WIDTH
A - B	12 FT.	150 FT.
B - C	12 FT.	100 FT.



AREA WHERE NEW WORK REMAINS TO BE DONE, SHOWN THUS: *[Hatched pattern]*
 THIS AREA HAS BEEN DREDGED TO A DEPTH OF 9 FEET.

**SALEM RIVER
 NEW JERSEY**

REVISED 30 JUNE 1968



U.S. ARMY ENGINEER DISTRICT, PHILA.

**SALEM RIVER, NEW JERSEY
(NAVIGATION)**

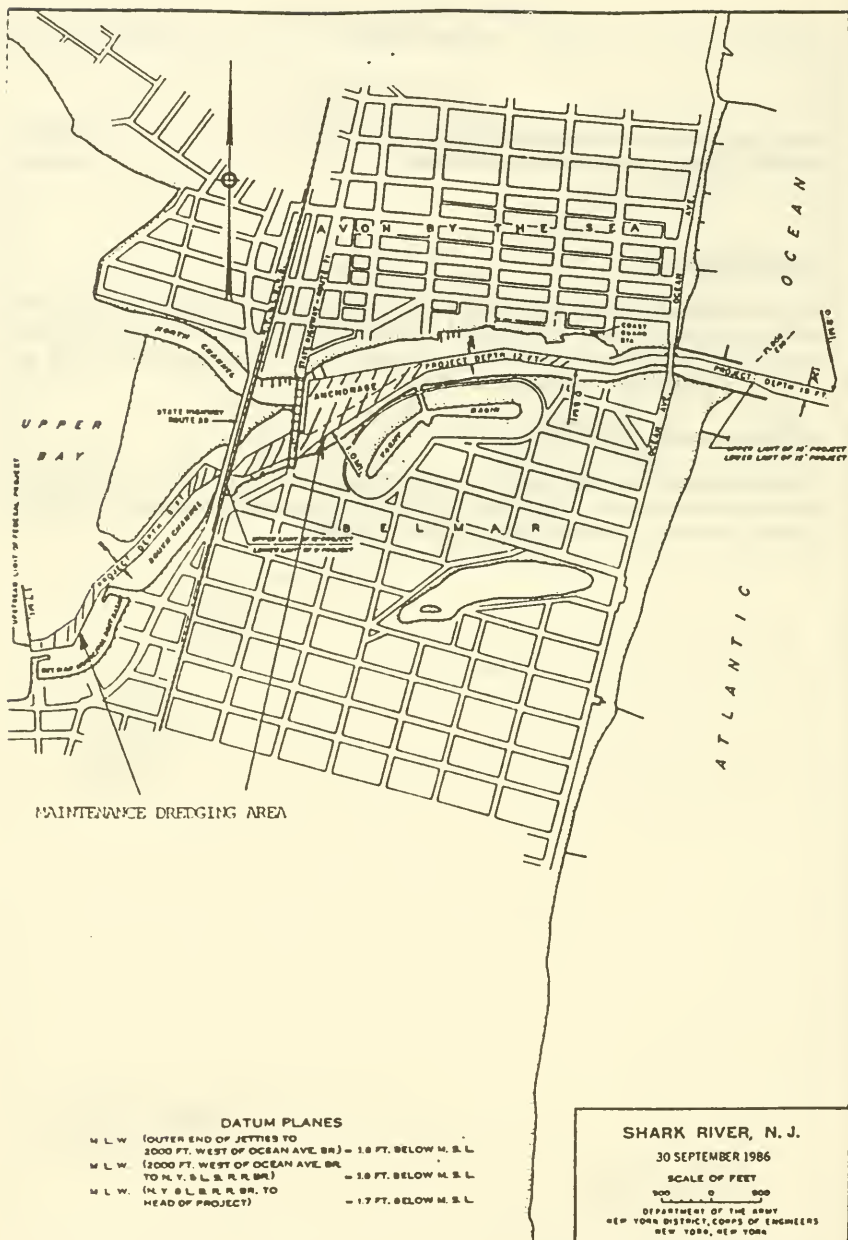
FY'96 PRESIDENT'S BUDGET REQUEST	\$ 410,000
PROJECT SPONSOR RECOMMENDATION	\$ 410,000

Project Description

The existing project, adopted as HD68-110 in 1925, provides for an entrance channel 12' deep and 150' wide in the Delaware River across Salem Cove to the mouth thence 12' deep and 100' wide to the fixed highway bridge in Salem. It also provides for a cutoff between the mouth and Salem. The project length is approximately 5 miles.

Project Sponsor Recommendations

We wish to support the Fiscal Year 1996 Budget Request of \$ 410,000 for the operation and maintenance of this project. The Salem River Channel currently provides access for 100 vessels annually to the Port of Salem and the Mid-Atlantic Terminal.



**SHARK RIVER, NEW JERSEY
(NAVIGATION)**

FY'96 PRESIDENT'S BUDGET REQUEST	\$1,190,000
PROJECT SPONSOR RECOMMENDATION	\$1,190,000

Project Description

A channel 18 ft. deep at mean low water and 150 ft. wide, across the bar at the entrance to the inlet; thence 12 ft. deep and generally 100 ft. wide through the Main Channel and South Channel to the Route 35 bridge; thence 8 ft. deep, and 100 ft. wide to the upper limit of the Belmar Municipal Boat Basin, with additional depths and widths where necessary and practicable to produce satisfactory current velocities at bridges; and an anchorage 12 ft. deep over an area about 7.8 acres east of Route 71 bridge. Length - about 1.7 miles.

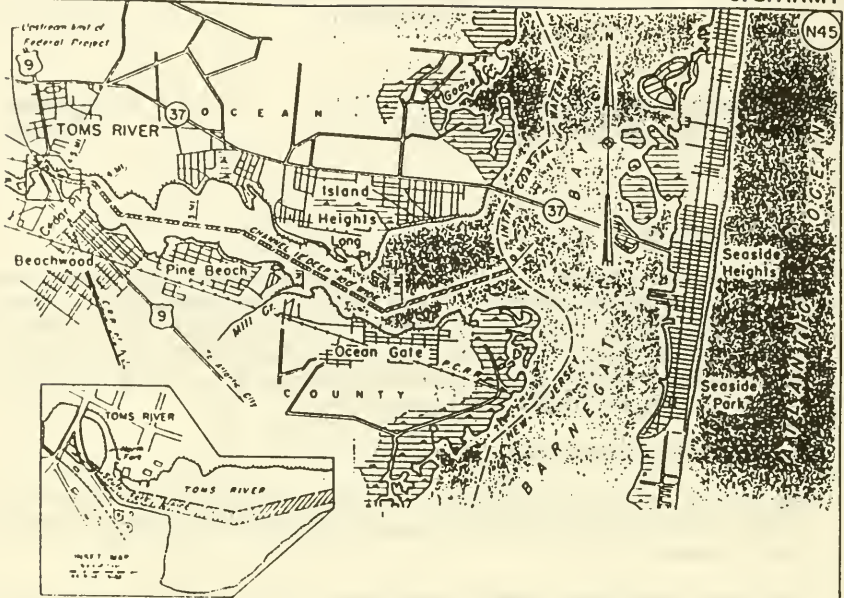
Project Sponsor Recommendation

This work will alleviate current shoals within the Federal navigational channel. These shoals present a hazard to navigation of commercial fishing boats and impede Coast Guard assistance in times of emergency.

This is one of several federal navigation channel projects in New Jersey that require funds for maintenance dredging in Fiscal Year 1996. Therefore, we wish to express our support for the FY'96 Budget Request of \$1,190,000 for the continued operation and maintenance of this channel.

CORPS OF ENGINEERS

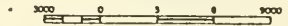
U. S. ARMY




TOMS RIVER NEW JERSEY

REVISED 30 SEPTEMBER 1979

SCALE OF FEET



U. S. ARMY ENGINEER DISTRICT, PHILA.

AREA WHERE NEW WORK REMAINS TO BE
DONE, SHOWN THUS: 
THIS AREA HAS BEEN DREDGED TO A
DEPTH OF 3 FEET.

**TOMS RIVER, NEW JERSEY
(NAVIGATION)**

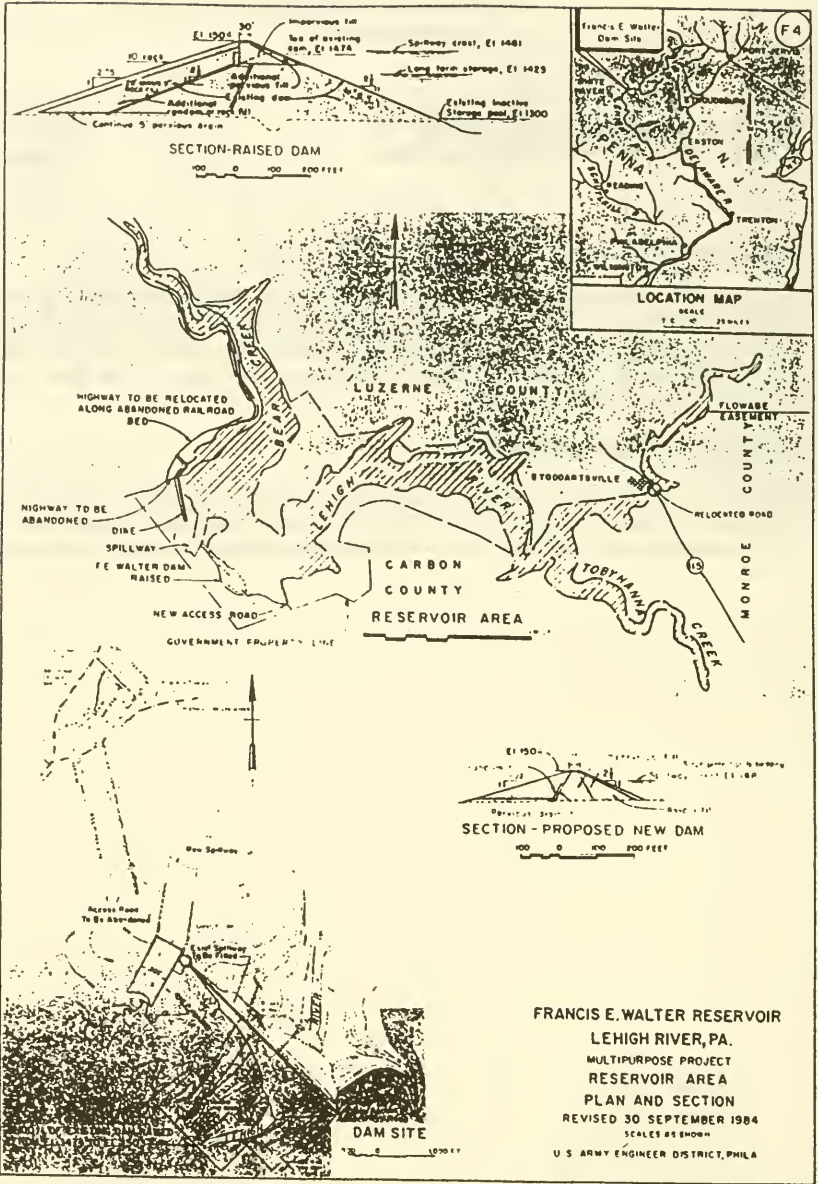
FY'96 PRESIDENT'S BUDGET REQUEST	\$ 290,000
PROJECT SPONSOR RECOMMENDATION	\$ 290,000

Project Description

The existing project adopted in 1910 (HD 346, 60th Congress, 1st Session) and modified in 1945 (HD 393, 77th Congress, 1st Session), provides for a channel 5 feet deep and 100 feet wide from the NJIWW channel in Barnegat Bay to the highway bridge over South Fork at Toms River and a channel 5 feet deep for full width of the North Fork to the highway bridge at Toms River. The total length of project is about 4.5 miles.

Project Sponsor Recommendations

This is one of several federal navigation channel projects in New Jersey that require funds for maintenance dredging in Fiscal Year 1996. Therefore, we wish to express our support for the FY'96 Budget Request of \$290,000 for the continued operation and maintenance of this channel.



FRANCIS E. WALTER DAM, PENNSYLVANIA
(FLOOD CONTROL AND WATER SUPPLY)

FY'96 PRESIDENT'S BUDGET REQUEST	\$675,000
PROJECT SPONSOR RECOMMENDATION	\$675,000

Project Description

The existing flood control and water supply dam rises to a maximum height of 234 ft. above the stream bed and extends 3,000 ft. across the valley. The modification to the existing dam to provide additional storage for water supply will include raising the dam by 30 ft. and replacing the existing intake tower and spillway. The water supply storage to be provided will be 70,000 acre-ft.

F.E. Walter Dam is located on the Lehigh River, 1/2 mile downstream of the confluence of the Lehigh and Bear Creek in Luzerne and Carbon Counties, Pennsylvania, and about 75 miles upstream of the confluence of the Lehigh and Delaware Rivers at Easton.

Project Sponsor Recommendation

We wish to support the Fiscal Year 1996 Budget request of \$675,000 for the operation and maintenance of this project, which benefits the four states represented in the Delaware River Basin Compact (Delaware, New Jersey, New York and Pennsylvania). While listed as a Pennsylvania project, this reservoir contributes to the water supply and flood control storage capacity of the entire four state region.

MARITIME ADVISORY COUNCIL AFFILIATE ORGANIZATIONS
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BRIDGETON MUNICIPAL PORT AUTHORITY

DELAWARE RIVER AND BAY AUTHORITY

DELAWARE RIVER PORT AUTHORITY

INTERNATIONAL UNION OF OPERATING ENGINEERS

JOINT EXECUTIVE COMMITTEE FOR THE IMPROVEMENT OF THE DELAWARE

MARITIME ASSOCIATION OF THE PORT OF NEW YORK/NEW JERSEY

MARITIME EXCHANGE FOR THE DELAWARE RIVER AND BAY

MARITIME RESOURCES COUNCIL

MARINE TRADES ASSOCIATION OF NEW JERSEY

NEW JERSEY ALLIANCE FOR ACTION

NEW JERSEY MARINE SCIENCES CONSORTIUM

NEW JERSEY SHORE AND BEACH PRESERVATION ASSOCIATION

NEW JERSEY STATE CHAMBER OF COMMERCE

NEW JERSEY STATE COMMISSIONERS OF PILOTAGE

NEW YORK SHIPPING ASSOCIATION, INCORPORATED

PENJERDEL COUNCIL

PERTH AMBOY WATERFRONT COMMITTEE

PORT AUTHORITY OF NEW YORK AND NEW JERSEY

SOUTH JERSEY PORT CORPORATION

SOUTHERN NEW JERSEY DEVELOPMENT COUNCIL

THE PILOTS ASSOCIATION FOR THE BAY AND RIVER DELAWARE

TOWBOAT AND HARBOR CARRIERS CONFERENCE, AWO
(AMERICAN WATERWAYS ORGANIZATIONS)

UNITED NEW YORK AND NEW JERSEY SANDY HOOK PILOTS ASSOCIATION

WATER RESOURCES ASSOCIATION

PREPARED STATEMENT OF PAUL LANE IVES, JR., CHAIRMAN, JOINT EXECUTIVE COMMITTEE FOR THE IMPROVEMENT AND DEVELOPMENT OF THE PHILADELPHIA PORT AREA

IDENTIFYING REMARKS

The Joint Executive Committee for the Improvement and Development of the Philadelphia Port Area (JEC) is port-affairs spokesman for twenty-six Delaware Valley civic and trade associations whose names appear at the bottom of this letterhead page. Organized in 1888, this Committee has participated in and promoted all major navigation improvements to the Delaware, Schuylkill and Christina Rivers and the Chesapeake and Delaware Canal. The members pay no dues beyond the nominal amounts needed to cover the organization's administrative expenses, and its officers serve without compensation.

The largest refining center on the east coast covering seven major refineries is located on the Delaware River. There are also major marine terminal facilities on the River handling a wide range of bulk, breakbulk and containerized cargoes. These are located in Camden, Gloucester, Pettys Island, Salem in New Jersey; Morrisville, Philadelphia, Chester in Pennsylvania; and Wilmington in Delaware. These facilities are known collectively as the Ports of Philadelphia.

International waterborne commerce handled through our Delaware River ports in calendar year 1994, totalled over 70 million tons; generating more than four billion dollars into the economy of the tri-state Delaware Valley region. In fiscal year 1994 waterborne commerce at the Ports of Philadelphia produced approximately \$428,832,292 for the Federal Government in Customs Receipts. This represents an approximate 5 percent increase over the 1993 collections.

SUMMARY

The Joint Executive Committee recognizes the need for fiscal restraint and accordingly we believe that the funding requests as presented in the following testimony will reasonably fulfill our requirements. We respectfully urge that the amounts proposed for our navigation projects be approved.

TESTIMONY

The Joint Executive Committee (JEC) appreciates the support of the Congress and the Corps of Engineers in maintaining the navigation arteries which sustain the economic vitality of our tri-state region. Reliable data reveals our Ports' activities along the Delaware River account for 53,000 jobs and generate over \$4 billion into the economy of the tri-state Delaware Valley Region.

The items of our particular concern to which we specifically invite attention are listed below and noted with the funding we believe is required in order to maintain proper standards and assure orderly social and economic progress.

GENERAL INVESTIGATIONS

Preconstruction, Engineering & Design President's FY '96 Budget

Delaware River - Main Channel	\$ 780,000
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These funds are required to continue orderly preconstruction, engineering

and design of the authorized main Delaware River 45-foot channel deepening project.

Surveys

Chesapeake and Delaware Canal Deepening \$ 57,000

Deepening of the C&D Canal and related channels is important to general cargo movements in the mid-Atlantic region. It will increase the commercial use of the Delaware River as well as enhance the potential for developing additional cargoes to and from our Delaware River ports.

Construction General

President's FY '96 Budget

Salem River \$ 3,576,000

Under the Construction General appropriation we would urge the Committee to complete the deepening of the Salem River to 16 feet. The project is critical to the future of the Salem River ports.

Operations and Maintenance

Delaware River, Philadelphia to Sea	\$18,157,000
Delaware River, Philadelphia to Trenton	\$ 1,255,000
Delaware River at Camden	\$ 850,000
Schuylkill River	\$ 1,930,000
Wilmington Harbor	\$ 2,513,000
Chesapeake and Delaware Canal	\$30,090,000
Salem River	\$ 410,000
<u>Total</u>	<u>\$55,205,000</u>

The operations and maintenance funding listed above is the minimum necessary to maintain the ports along the Delaware River in a healthy, competitive and progressive state. It is imperative that our channels be well maintained to full project depths especially in recognition that over 55 million tons of petroleum move through our Delaware River port areas annually. Full project depths decrease the potential for groundings and reduce the potential for oil spills. We consider the President's Budget request the minimum amount needed to maintain our channels in reasonable condition while fully recognizing the need for fiscal restraint.

The port areas described above, Philadelphia, PA; Camden, NJ and Wilmington, DE continue to contribute to the economy of the region with congressional support for the budget amounts required. The local interests' support of these navigation projects, and required improvements, is evidenced in the commitments by the Delaware River Port Authority to provide the local interest cost sharing for a deepened 45' channel. In addition to these federal projects, the Commonwealth of Pennsylvania with funding participation from both Conrail and Canadian Pacific railroads servicing the Port are spending over \$80 million to eliminate bridge and tunnel clearance restrictions throughout Pennsylvania; permitting the introduction of "high and wide" oversized export cargo shipments currently denied access through the Port of Philadelphia. CSX is currently discussing

with state officials how it might also participate in the expected improvement of rail service utilizing Delaware River ports.

Of particular note is the need to continue work towards completion of the improvements to the Delaware River channels. The money for the Delaware River Preconstruction, Engineering and Design for the 45-foot channel from Philadelphia to Sea is essential. The proposed channel deepening has benefits which will exceed costs. The benefits will accrue on over 70 million tons of cargo which transit the Delaware River. The proposed 45-foot channel deepening improvement will also increase our bulk export cargo of scrap iron and offers the opportunity to attract the new generation of container vessels now coming on line and which draw 42 feet.

In addition, we would request that no monies be appropriated for any proposed Corps restructuring without Congressional approval of the plan. We would re-state our strong belief that the Philadelphia District has been exemplary in practicing its "Customer Care" for the Delaware Valley region and the New Jersey shore. The District has contributed to our economy and to the development of the region's resources. Consequently, we take this opportunity to reiterate our firm support for the continued retention of the U. S. Army Corps of Engineers Philadelphia District as presently structured.

The Joint Executive Committee has in the past strongly supported the need to retain the Corps of Engineers minimum dredge fleet, in particular the Dredge McFARLAND assigned to the ports of Camden, Philadelphia and Wilmington. There continues to be a threat to eliminate the McFarland from the Corps minimum dredge fleet. The Dredge McFARLAND provides a vital service to these ports in maintaining the Delaware River channel along with a number of projects along the East and Gulf Coasts. In recent years it has responded to emergency and national defense dredging. These assignments resulted in opening ports on short notice. They could not have been accomplished without the participation of the Corps' minimum dredge fleet.

Before we leave, we wish to express our opposition to the current Administrative proposals to reduce the role of the Corps of Engineers in its traditional role in other water related projects. While the Joint Executive Committee is focused on deep draft navigation, the Corps' flood control and beach erosion mission and its maintenance of small commercial harbors vital to our region's commercial fishing industry should be continued. We ask your help in sustaining these vital Corps missions.

**PREPARED STATEMENT OF THE HONORABLE VERNON A. NOBLE,
CHAIRMAN, GREEN BROOK FLOOD CONTROL COMMISSION**

Mr. Chairman and Members of the Subcommittee:

My name is Vernon A. Noble, and I am the Chairman of the Green Brook Flood Control Commission. I am here before you today in support of the Raritan River Basin - Green Brook Sub-Basin project, which we request be budgeted in FY 1996 for \$3,600,000 for preconstruction engineering and design funds.

The Commission was established in 1971, pursuant to an Act of the New Jersey Legislature, following disastrous flooding which took place in the Green Brook Basin in the late Summer of 1971. That flood caused \$72,000,000 in damages and disrupted the lives of thousands of persons.

In the late Summer of 1973, another very severe storm struck the area, and once again thousands of persons were displaced from their homes. \$75,000,000 damage was done and six persons lost their lives.

Thanks to the efforts of New Jersey's Representatives and Senators in Congress, the Corps of Engineers was authorized by Congress in 1986 to design a solution to this problem of flooding. The floods of 1971 and 1973 were only the most recent in a long series of severe floods. Flooding in this Sub-Basin dates back to the late 1800's when they were first recorded, and has become more damaging as the population of the area has grown.

The Green Brook Flood Control Commission is made up of appointed representatives from Middlesex, Somerset and Union Counties in New Jersey, and from the 13 municipalities within the Basin. This represents a combined population of almost one-quarter of a million (248,084) people.

The Members of the Commission are all volunteers, and for over 20 years have served, without pay, to advance the cause of flood protection for the Basin. Throughout this time, the Corps of Engineers, New York District, has kept us informed of the progress of the project, and a representative from the Corps has been a regular part of our monthly public meetings.

Thanks to the vigorous support of New Jersey's Congressional Delegation, the Congress in 1986 authorized a comprehensive flood control project for the protection of the entire Green Brook Basin at a then established estimated cost, in 1985 dollars, of \$203,000,000

In 1987, Congress adopted Legislation which included a provision making it clear to the Corps of Engineers that protection is to be designed for the entire Green Brook Basin, rather than only the lower portion of the Basin, as had one time been studied by the Corps of Engineers.

We believe that it is essential that the Green Brook Flood Control Project be carried forward, and pursued vigorously to achieve protection at the earliest possible date. This project is needed to prevent loss of life and property, as well as the trauma caused every time there is a heavy storm. We urgently request an appropriation for the project in FY 1996 of \$3,600,000.

The Commission is pleased that the Administration has included in its FY 1996 budget proposal a recommendation of \$3,600,000 for the project for FY 1996. We fully support that request.

New Jersey has strongly reaffirmed its support for the project to provide full protection for all of the people of the Basin. In January 1992, the New Jersey Legislature passed a Bill, which was signed by the Governor, establishing a program to plan for the non-Federal share for this and other water resources related projects. New Jersey has programmed budget money for its share of the project for FY 1996.

The more quickly the design of this project is completed, the less will be the total cost, and the sooner the project can go to construction.

Economics and costs are of course important, but personal human tragedy, and the loss of life, is more important.

We note that during the past 12 months the work of the New York District of the Corps of Engineers has substantially accelerated, and we are gratified with this development. Nevertheless, the progress, we believe, can and should be further accelerated.

We have studied and discussed the proposals by the President for changes in the standard for Federal participation in projects such as the Green Brook Flood Control Project in New Jersey. We believe that these proposed new standards, at least insofar as they apply to flood control projects, are undesirable, and we express the hope that they will not be adopted.

We urgently request that the Congress provide an appropriation of \$3,600,000 for the Green Brook Flood Control Project in FY 1996.

Thank you, Mr. Chairman, and Members of the Subcommittee, for the opportunity to present this testimony to you today.

GREEN BROOK FLOOD CONTROL GREEN BROOK SUB-BASIN, RARITAN RIVER BASIN, NEW JERSEY

GREEN BROOK FLOOD CONTROL PROJECT FUNDING

FEDERAL FISCAL YEAR	FEDERAL ADMINISTRATION BUDGET REQUEST	CONGRESSIONAL APPROPRIATION (NOMINAL)	SAVINGS AND SLIPPAGES	EFFECTIVE NET APPROPRIATION TO CORPS OF ENGINEERS	TRANSFER BY CORPS TO (-) FROM (+) OTHER PROJECTS	NET MONEY AVAILABLE FOR WORK ON PROJECT (WORK ALLOWANCE)
1986	\$ 445,000	\$ 445,000	\$ -19,000	\$ 426,000	\$ - - -	\$ 426,000
1987	1,370,000	1,370,000	- - -	1,370,000	- - -	1,370,000
1988	1,400,000	1,400,000	- - -	1,400,000	- - -	1,400,000
1989	1,500,000	1,500,000	-68,000	1,432,000	- - -	1,432,000
1990	1,200,000	1,200,000	-73,000	1,127,000	-20,000	1,107,000
1991	2,000,000	2,000,000	-496,000	1,504,000	-98,000	1,406,000
1992	2,600,000	3,189,000	-384,000	2,805,000	- - -	2,805,000
1993	- - -	3,500,000	- - -	3,500,000	- - -	3,500,000
1994	- - -	2,800,000	-594,000	2,206,000	- - -	2,206,000
1995	2,000,000	2,000,000	- - -	2,000,000	+135,000	2,135,000
1996	3,600,000	3,600,000				

REFERENCE:

THIS SUMMARY OF FUNDING FOR THE GREEN BROOK FLOOD CONTROL PROJECT HAS BEEN ASSEMBLED BASED UPON PUBLICLY AVAILABLE INFORMATION.

NET MONEY AVAILABLE TO CORPS OF ENGINEERS
NEEDED FOR FY1996 TO OPTIMIZE
PROGRESS FOR EARLY COMPLETION

PREPARED BY:
GREEN BROOK FLOOD CONTROL COMMISSION
GREEN BROOK, NEW JERSEY 08060

PREPARED STATEMENT OF THE HONORABLE LINWOOD O. BRANCH, III, COUNCILMAN, CITY OF VIRGINIA BEACH, VA

Good Afternoon Chairman Myers and members of the Committee. My name is Linwood Branch. I am a City Councilman for the City of Virginia Beach. It is a privilege to appear before your committee today.

As you probably know, Virginia Beach is a beautiful resort city located only a few hours drive from the nation's capitol. My family happens to be involved in the resort industry as we own a small, independent hotel on the beach. We know first hand that the well-being of our beach front is crucial to the City's economy. The 6 miles of commercial beach front are the livelihood of many Virginia Beach residents and the City's financial health since tourism is

the biggest industry in this, the largest city in the Commonwealth of Virginia with a population of 416,000.

I am here today to discuss several projects of grave concern to the City which are essential to its economic well-being. May I say here, that we are fortunate to have a Congressional delegation which fully supports our efforts on all of these projects.

First, in the 1992 Water Resources Development Act, Congress authorized the Virginia Beach Erosion Control and Hurricane Protection Project at a total project cost of \$112 million. This construction project will protect six miles of commercial and residential beach front from storm damage resulting from a direct hit from a hurricane. It is a way for the city to protect the nearly \$100 million it has recently invested in Atlantic and Pacific Avenues as well as \$290 million in private enterprise development. This proposed project has been under consideration for over 25 years and we have invested substantial time and money in this project. However, just as we are finally scheduled to start construction in FY '96, with a requested need of \$1.6 million in federal dollars, we find that the Corps has not included any funding for the project in their '96 budget. The project has been the basis for the recent renovation of the entire beach front area, and its cancellation or delay will put the entire above-mentioned investment at risk. Accordingly, we respectfully request that your committee fund the \$1.6 million "new" start construction on this long awaited project that means so much to our City and the region.

Second, I am here to address the annual beach nourishment program which has continued with federal cost participation since 1993. Section 934 of the 1986 Water Resources Development Act (WRDA) authorized an extension of federal participation for an additional 25 years upon execution of a new local Cooperation Agreement. The 1990 WRDA further authorized the Corps to reimburse the City, retroactive to 1987, for the federal share of beach nourishment along the resort area from Rudee Inlet to 89th Street, the reimbursement is now estimated at \$3,120,803, of which \$2,737,547 has already been approved by a federal audit report with the balance pending completion of the full audit.

On August 9, 1993, the City of Virginia Beach finally executed the Local Cooperation Agreement (LCA) with the Corps which reinstated federal cost participation in the annual beach nourishment program, and which stated in part, "The Government shall reimburse the Local Sponsor (Va. Beach) for such (retroactive) costs *only when specifically directed Congress in legislation and when appropriations are made available for such purpose.*"

The Corps of Engineers has advised us that they do not intend to budget for the \$3,120,803 retroactive reimbursement. The President's FY95 Budget requested \$900,000 for Virginia Beach, which was included in last year's Energy & Water Appropriations bill, but this funding is only for the upcoming fiscal year, and DOES NOT address the reimbursement amount promised to the City by the Federal Government for the City's past sole expenditures for beach nourishment between 1987 and 1993 inclusive.

Mr. Chairman, this is an issue of the Federal Government taking responsibility for its commitments. Based on the fact that this reimbursement has been authorized by Congress to be paid to the City of Virginia Beach in the 1990 WRDA, and now that the LCA now requires a specific appropriation from Congress, we implore you to include the \$3,120,803 for retroactive reimbursement payment in the FY96 budget.

This request should not be considered as new funding. Rather, it should be considered as repayment for commitments made by the federal government to the City of Virginia Beach over the past 6 years. This issue is particularly painful to the City because the City has already expended the funds based on assurances by the federal government that they would be reimbursed!

We were shocked to learn that during the Senate Environment and Public Works Committee hearings before Senator John Warner last month, Dr. John Zirschky, Acting Assistant Secretary of the Army for Civil Works, told Senator Warner that the Corps *no longer considered maintaining the shorelines of the United States to be in the national interest.* Senator Warner said that if this is true, it is a major reversal of national policy, and Congress certainly would not support that reversal.

We certainly hope that the Federal policy regarding the nation's shoreline has not been reversed, particularly with projects such as these where there is a long history of federal promises and funding involvement.

Therefore, we respectfully request that the federal government honor the commitment that it made to Virginia Beach for Section 934 funding, and reimburse the City \$3,120,803 in the Energy and Water Appropriations Bill.

Finally, Mr. Chairman, I would like to briefly discuss another erosion and control and hurricane protection project currently underway at Sandbridge beach, south of the City. The Water Resources Development Act of 1992 authorized this project at a total cost of \$8.85 million, with \$5.75 million being the total federal share. The City is pleased that the Corps budgeted \$470,000 for continued preconstruction, engineering and design for FY96, with new start construction expected to begin in FY97. To ensure that this project move forward, the City has enacted a special tax district at Sandbridge and will receive \$2.8 million reimbursement from the Commonwealth for the initial nourishment cost. Sandbridge Beach is badly eroded and we urge that federal involvement continue in this very important project.

Mr. Chairman, that concludes my testimony. Thank you for allowing me the opportunity to appear here today on behalf of the City of Virginia Beach.

PREPARED STATEMENT OF THE HONORABLE SHARPE JAMES, MAYOR OF
NEWARK, NJ

Mr. Chairman, Members of the Energy and Water Subcommittee, let me begin by thanking you for the opportunity to submit testimony on behalf of the City of Newark in support of the Newark Riverfront Project. Over the next few weeks and months your Subcommittee will have many difficult choices to make. It is my hope that this testimony will be useful to you in that process.

Development of Newark's Riverfront is an essential piece of Newark's overall economic and transportation redevelopment plan. That plan includes four critical projects, all located side-by-side in the central city: the Riverfront project, the New Jersey Performing Arts Center, the Elizabeth Rail Link, and the enhancement of Route 21 and I-280.

Mr. Chairman, development of the Riverfront offers a once in a lifetime opportunity to tie together these projects and rebuild our downtown area. The Riverfront will form the nexus of a vibrant

downtown cultural center that will stimulate economic development and provide the citizens of Newark, and the state of New Jersey, with tremendous new opportunities.

Newark's Riverfront has the potential to mirror many of the other successful waterfront development projects nationwide. Following bank stabilization and riverfront edge redevelopment, a strategic set of land acquisition and public investments will be needed to ensure that the waterfront space is attractive and available to the general public.

In FY '96, the Army Corps of Engineers has reported that it needs just \$900,000 to move ahead with this important project.

This appropriation will allow the Army Corps to continue its work on overall design of the waterfront and provide funds for the initiation of site construction. The City of Newark strongly supports this request and it is our sincere hope that your Subcommittee will as well.

In this time of enormous budget constraints the City recognizes the importance of getting the "biggest bang for the federal buck". The Newark Riverfront project does exactly that and deserves your full support.

PREPARED STATEMENT OF JOHN P. PETER, PRESIDENT AND CHIEF OPERATING OFFICER, KIDSPACE NATIONAL CENTERS FOR KIDS IN CRISIS

Mr. Chairman and Members of the Subcommittee, thank you for providing me with this opportunity to submit a statement for the record in conjunction with the FY 1996 Energy and Water Appropriations hearings. In my statement, I will tell you about KidsPeace and the unique plan we have developed to preserve the wetlands on our property and how these wetlands will become an educational tool for KidsPeace's residents. I will also discuss how this project is within the scope of the mission of the U.S. Army Corps of Engineers.

KidsPeace National Centers for Kids in Crisis (KidsPeace Corporation) is a non-profit corporation dedicated to the prevention and treatment of crisis brought on by abuse, neglect and emotional distress. It serves children and adolescents between the ages of 5 and 18. Its campus houses KidsPeace's residential programs, the National Hospital for Kids, the Lee Salk Center, and a host of educational and recreational programs. While a majority of its services are provided on the campus in Pennsylvania, KidsPeace treats a total of 2,000 children a day in 25 locations in five states.

When KidsPeace Corporation designed and began the construction of our 287-acre National Headquarters campus in North Whitehall Township, Pennsylvania several years ago, we sought to create an environment that is largely self-sufficient, both functionally and ecologically. To achieve this, we have constructed much of our own infrastructure, and have worked to preserve the unique aesthetic and ecological aspects of the site. For example, KidsPeace has maintained much of the apple and pear tree orchards on the campus, and we harvest the fruit for consumption by residents and staff. While KidsPeace is committed to preserving and enhancing the natural resources on the site for their ecological value, we also believe that these resources present a unique and valuable educational resource for the children we serve. KidsPeace's efforts are supported and assisted by the Wildlands Conservancy.

In keeping with our commitment to the environment, KidsPeace has developed a plan that will preserve and enhance the wetlands on our property, while constructing a system of natural trails so that these wetlands and other ecosystems may be used for educational and recreational purposes.

Specifically, KidsPeace proposes to construct a 2.75 mile system of nature trails in and around the wetlands and the other ecosystems on our property. These trails, which consist of a 2-mile loop and several alternate trails, will be constructed of materials native to the site. The use of these materials is particularly important in protecting the environmentally sensitive areas on the trails. Foot bridges and elevated platforms for group study will be constructed to minimize the environmental disruption while maximizing educational opportunity.

In addition to preserving and enhancing the wetlands, the trail system will link other ecosystems on the property, including a pond, natural aquatic environments (the Jordan Creek and the Unnamed Tributary), hardwood woodlands, a conifer forest, an upland meadow, orchards, and secondary succession grasslands. It will also link other parts of the campus, such as residences, athletic facilities, the Wigwam Village (a camp site) and a proposed weather station.

The trail system will provide numerous educational benefits. KidsPeace residents will be able to view a wide range of plant, animal and aquatic life, as well as grass, tree and soil varieties. Viewing boxes, plexiglas plates placed vertically along unique soil profiles and used for study, will be placed along the trails, along with a number of other educational instruments that will enhance the residents' experiences on the trails. For children who have suffered abuse and neglect or who are emotionally disturbed, these learning experiences that focus on life cycles are an extremely valuable part of their treatment.

Further educational experience will be provided at the Natural Sciences Center at the hub of the trail system. In keeping with our commitment to preservation, KidsPeace intends to renovate an existing, historic farmhouse on the property to house the Center. This facility will provide a place to analyze samples taken from the trails, and to display natural science projects conducted by the residents.

In conjunction with the trail system, KidsPeace intends to construct a 2.1 acre pond located on the trail between the residential, recreational, and naturally preserved areas of the campus. This pond will play an important role in the protection of wetland areas. Its other functions will include educational, recreational, and aesthetic opportunities. Animal and plant life will be added to create an evolving man-made ecosystem. In this regard, select species of amphibians, aquatic, and terrestrial animals, such as tadpoles, snails, and fish will be proportionally introduced to the pond to create a balanced symbiotic ecosystem within the aquatic community. To further complement this environment, aquatic plant material including cattails, bulrushes, and sedges will also be clustered in selective pockets along the shoreline. A small aeration fountain will enhance oxygen supply to the water.

Traditional recreational elements for the residents will include canoeing, fishing, and model boat sailing that will originate from a small dock and boat house along the eastern shore. Although man-made, we have sought to ensure that the natural shape and aquatic plantings will provide an interesting and colorful natural view of the pond from the surrounding higher elevations of the campus.

The project we propose is unique to both Pennsylvania and the nation. While wetlands preservation does occur, most often because it is mandated by law, relatively few groups have sought to derive educational benefits from this preservation. In preserving its wetlands and other ecosystems, KidsPeace is serving the environment and its residents. In addition, this project is eligible for Federal support.

Over the last decade, Congress has become increasingly concerned with the preservation of our nation's wetlands and has translated that concern into numerous laws. More recently, Congress has given the U.S. Army Corps of Engineers some responsibility for the preservation and enhancement of wetlands. In the Water Resources Development Act of 1990 (PL 101-640), Congress instructed the Corps of Engineers to begin a wetlands

preservation demonstration program. In subsequent legislation (PL 102-580), Congress indicated that the Corps of Engineers may undertake projects that are recreational in nature.

Although the project will take place on private property, KidsPeace provides numerous public services to the surrounding community. First, water is a scarce commodity in this region and we have entered into an agreement with the Lehigh County Water Authority to provide treated water to the community from our own water supply. I should note that our water supply comes from wells we have dug on our campus that are fed by the wetlands involved in this project. As part of this agreement, KidsPeace is also treating water supplied by the Lehigh County Water Authority in our water treatment facility. We have also agreed to provide water for fire fighting purposes. Second, KidsPeace has an agreement with North Whitehall Township and the Pennsylvania Department of Environmental Resources to allow neighboring communities to hook into our sewage treatment facilities. Finally, apart from the public utilities provided to the community, KidsPeace provides the local school district and the Boy Scouts access to our athletic facilities.

We believe that the use of our land for public purposes, coupled with legislative precedents regarding the Corps of Engineers' activities in this area, constitute the rationale for this request. As such, KidsPeace Corporation and KidsPeace National Centers for Kids in Crisis are seeking the Subcommittee's support for funding in the sum of \$550,000 in Fiscal Year 1996 for the development and construction of the Wetlands Preservation and Education Enhancement Project.

Mr. Chairman, thank you for this opportunity to present my statement and for the Subcommittee's consideration of this request.

SOUTHEAST AND LOWER MISSISSIPPI RIVER WATER RESOURCE DEVELOPMENT PROJECTS

PREPARED STATEMENT OF SENATOR RICHARD SHELBY

Mr. Chairman, I appreciate this opportunity to offer testimony on behalf of the Coosa-Alabama River System.

The Coosa-Alabama River Improvement Association has requested FY 1996 funding for continued operation and maintenance of the Waterway in the amount of 43.6 million dollars. This is an effort that has the unqualified support of the Alabama Congressional Delegation and the membership of the Coosa-Alabama River Improvement Association. I support this request so that the following specific needs may be met: (1) continued dredging and appropriate maintenance for the Alabama River Channel (2) completion of the Coosa River Navigation Project (3) continued federal maintenance and operation of the Alabama River waterway from Mobile to Montgomery as well as Mobile Harbor (4) Continued operation and maintenance of the upstream reservoirs and hydropower plants at Allatoona and Carters Lake in Georgia.

In addition to these objectives, I want to express my hope that we can make the Alabama River useable year-round by constructing a fourth dam in the area south of Claiborne. The Association has requested 238,000 dollars for reconnaissance and feasibility studies in order to move this project forward.

Although onerous barge fuel taxes were scaled back and waterway user fees were removed from the 1993 tax bill, proposals for expanded taxes or user fees are still being considered by some members of the Administration. The increase in user fuel tax would have a negative impact on all aspects of trade from the waterway. As a result, I will continue to oppose any increases in these economically crippling assessments.

Mr. Chairman, I cannot allow today's hearing to go by without mention of the circus surrounding the Alabama sturgeon listing process. Although Secretary Babbitt decided not to list the Alabama Sturgeon - citing a lack of scientific evidence - the Fish and Wildlife Service intends to renew their search for a Sturgeon in the next month or so. The Fish and Wildlife Service budget plan provides for 70 to 90 additional working days on the Alabama river. A considerable amount of money has already been wasted by the FWS over the last three years, and I find it absurd they are continuing to search after the decision of Secretary Babbitt.

In addition, the Fish and Wildlife Service has accepted a petition to list the southern population of the Southern Walleye as an endangered species. Once again, citizens along the waterway must live with the constant fear and anxiety of having a tireless Fish and Wildlife Service devastate their communities with little if any scientific evidence. When will the charade end?

I believe the Coosa-Alabama Waterway system is a solid investment in future productivity and economic progress. Extensive commitments to private investment on navigable waterways have been made on the assumption that federal maintenance and operation of the waterways would continue. I pledge my continued support for this important project which holds such promise of economic benefit.

Thank you Mr. Chairman for the opportunity to offer testimony to this distinguished subcommittee on behalf of the Coosa-Alabama River System.

PREPARED STATEMENT OF SENATOR HOWELL HEFLIN—FUNDS FOR THE ALABAMA WATERWAY PROJECTS

MR. CHAIRMAN, AS YOU AND THE OTHER MEMBERS OF THIS

SUBCOMMITTEE KNOW, I HAVE A DEEP AND ABIDING INTEREST IN THE DEVELOPMENT OF THE WATERWAY RESOURCES IN ALABAMA AS WELL AS NATIONWIDE. I APPRECIATE THE OPPORTUNITY TO APPEAR BEFORE YOU TODAY AND JOIN WITH SPOKESMEN FROM THE ALABAMA RIVER DEVELOPMENT ASSOCIATIONS IN SUPPORT OF FUNDS FOR THE CONTINUED AND ORDERLY DEVELOPMENT OF WATER RESOURCES IN ALABAMA.

IT WILL BE MORE BENEFICIAL TO THIS COMMITTEE TO RECEIVE THE VIEWS AND RECOMMENDATIONS OF THOSE HERE TODAY FROM THE ALABAMA WATERWAY DEVELOPMENT AUTHORITIES WHO HAVE TRAVELED HERE TO PRESENT THEIR CASES TO YOU ON BEHALF OF THEIR RESPECTIVE WATERWAY SYSTEMS. THIS GROUP IS DEDICATED TO THE PRINCIPLE THAT THE ENTIRE ECONOMY WILL BENEFIT FROM THE CONTINUED INVESTMENT IN THE

DEVELOPMENT OF ALABAMA'S RIVERS AND OTHER WATER RESOURCES. I
WARMLY COMMEND THEIR TESTIMONIES TO YOU.

ALABAMA IS BLESSED WITH MORE MILES OF NAVIGABLE WATERWAYS
THAN ANY OTHER STATE IN THE NATION. AS THIS SUBCOMMITTEE IS WELL
AWARE, INLAND WATERWAYS ARE A VITAL COMPONENT OF AMERICA'S
TRANSPORTATION INFRASTRUCTURE. THE AVAILABILITY OF EFFICIENT AND
RELIABLE BARGE SERVICE IS EXTREMELY IMPORTANT TO THE VIABILITY OF
KEY SECTORS OF THE U.S. ECONOMY AND CERTAINLY TO THE ECONOMY OF
THE REGION. THE ECONOMIC LIVELIHOOD OF THESE SECTORS DEPENDS ON
TRANSPORTATION EFFICIENCIES WHICH ONLY WATERWAYS CAN OFFER IN THE
DELIVERY OF RAW MATERIALS, ACCESS TO DISTANT MARKETS, AND
ECONOMIES OF SCALE. FOR THESE REASONS AND MORE, THERE IS CLEARLY
A BROAD PUBLIC INTEREST IN DEVELOPING AND MAINTAINING THE INLAND
WATERWAY SYSTEMS WHICH JUSTIFIES THE REQUEST FOR CONTINUED
FEDERAL PARTICIPATION.

THE PUBLIC INVESTMENTS FOR WHICH WE ARE SEEKING FUNDS WILL
PROVIDE RETURNS TO THE ENTIRE ECONOMY THROUGHOUT THE USEFUL LIFE
OF THE PROJECTS. THIS, OF COURSE, MEANS A HIGHER STANDARD OF
LIVING AND INCREASED ECONOMIC OPPORTUNITIES FOR THE PEOPLE OF THE
REGION THAN WOULD BE POSSIBLE WITHOUT THESE INVESTMENTS IN PUBLIC
CAPITAL. INDEED, THE OVERALL QUALITY OF LIFE IN OUR STATE AND
REGION WILL BE ENHANCED IF WE FUND THESE PROJECTS AND BRING THEM
TO COMPLETE FRUITION.

I AM MOST GRATEFUL TO THE SUBCOMMITTEE FOR ITS INTEREST IN THE FULL DEVELOPMENT OF THE WATER RESOURCES IN ALABAMA. WITH YOUR CONTINUED HELP, THESE INVESTMENTS WILL RETURN RICH DIVIDENDS TO FUTURE GENERATIONS OF AMERICANS.

THANK YOU, MR. CHAIRMAN.

PREPARED STATEMENT OF SENATOR HOWELL HEFLIN—TVA'S
ENVIRONMENTAL RESEARCH CENTER

MR. CHAIRMAN, I WOULD LIKE TO TAKE THIS OPPORTUNITY TO THANK YOU AND THE SUBCOMMITTEE FOR YOUR SUPPORT OF TVA'S ENVIRONMENTAL RESEARCH CENTER OVER THE YEARS, AND TO REQUEST YOUR CONTINUED SUPPORT. I WILL MAKE A FEW, BRIEF COMMENTS ON BEHALF OF THE CENTER.

IT IS A WELL KNOWN FACT THAT TVA ONCE CONDUCTED THE NATION'S MOST EFFECTIVE PROGRAM IN DEVELOPING NEW FERTILIZER AND NUTRIENT TECHNOLOGIES THAT HAS FUELED THE LEGENDARY GAINS IN FOOD AND FIBER PRODUCTION IN THE UNITED STATES AND AROUND THE WORLD. BECAUSE OF THIS WORK, TVA IS LARGELY RESPONSIBLE FOR THE TREMENDOUS SUCCESS OF U.S. AGRICULTURE.

DURING THE DECADES TVA CONDUCTED ITS FERTILIZER AND AGRICULTURAL RESEARCH PROGRAMS, IT BUILT A STRONG BASE OF EXPERTISE IN CHEMISTRY, CHEMICAL ENGINEERING, PROCESS ENGINEERING, AGRONOMY, AND OTHER RELATED AGRICULTURAL AND

NUTRITIONAL SCIENCES. NOW TVA IS CAPITALIZING ON THIS EXPERTISE IN DEVELOPING TECHNOLOGIES TO SOLVE ENVIRONMENTAL WASTE PROBLEMS IN THE TENNESSEE VALLEY AS WELL AS ACROSS THE NATION.

TODAY, TVA'S ENVIRONMENTAL RESEARCH CENTER IS ON THE THRESHOLD OF DISCOVERING NEW WAYS TO PREVENT OR REDUCE POLLUTION OF THE AIR, LAND, AND WATER FROM AGRICULTURAL, MUNICIPAL, AND INDUSTRIAL OPERATIONS. FOR OUR NATION TO ACHIEVE AGRICULTURAL AND ECONOMIC SUSTAINABILITY, WE MUST HAVE INNOVATIVE TECHNOLOGIES TO OPERATE OUR FARMS, FACTORIES, UTILITIES, AND CITIES IN ENVIRONMENTALLY ACCEPTABLE WAYS.

THE RESEARCH AND DEVELOPMENT UNDERWAY AT THE ENVIRONMENTAL RESEARCH CENTER CAN HELP US AVOID A CRISIS IN MANAGING AND DISPOSING OF OUR AGRICULTURAL, MUNICIPAL, AND INDUSTRIAL WASTES. IN FACT, SOME OF THE ENVIRONMENTAL RESEARCH CENTER'S TECHNOLOGIES ARE ALREADY IN USE THROUGHOUT THE COUNTRY IN CLEANING UP CONTAMINATED SITES, REDUCING POLLUTION FROM AGRICULTURAL BUSINESS OPERATIONS, AND CONVERTING WASTES INTO VALUE-ADDED PRODUCTS.

MR. CHAIRMAN, BECAUSE OF TODAY'S BUSY SCHEDULE, I WILL NOT CITE THE MANY AREAS OF RESEARCH UNDERWAY AT THE CENTER, NOR GO INTO DETAIL ON THE MANY BENEFITS THE CENTER'S WORK WILL HAVE ON

THE ENVIRONMENT. SUFFICE IT TO SAY THAT THE WORK BEING CONDUCTED AT THE ENVIRONMENTAL RESEARCH CENTER IS ESSENTIAL FOR THE ENVIRONMENTAL QUALITY OF OUR COUNTRY IN THE FUTURE, AND IT DESERVES YOUR CONTINUED SUPPORT.

THANK YOU, MR. CHAIRMAN.

PREPARED STATEMENT OF SENATOR HOWELL HEFLIN—FUNDS FOR THE WARRIOR-TOMBIGBEE WATERWAY

MR. CHAIRMAN, I WOULD LIKE TO THANK YOU FOR THIS OPPORTUNITY TO APPEAR AGAIN BEFORE YOUR SUBCOMMITTEE ON BEHALF OF FUNDS FOR THE WARRIOR-TOMBIGBEE WATERWAY.

I RESPECTFULLY REQUEST THAT THE COMMITTEE SUPPORT THE CORPS' BUDGET REQUEST FOR \$16.8 MILLION IN OPERATIONS AND MAINTENANCE FUNDS FOR THE WARRIOR-TOMBIGBEE WATERWAY. BOTH THE JACKSON AND NAHEOLA BRIDGE CHANNEL IMPROVEMENT PROJECTS ARE FAR ENOUGH ALONG THAT AT LEAST ONE IF NOT BOTH SHOULD BE ON CONTRACT BEFORE THE END OF FY95 AND HOPEFULLY FUNDED SO AS NOT TO REQUIRE LARGE ADDITIONAL FY96 FUNDS.

I THEREFORE SUPPORT THE \$16.8 MILLION REQUEST AND WISH TO EMPHASIZE THAT IT IS \$2.3 MILLION LESS THAN OUR REQUEST FOR FY95. THIS IS THE ABSOLUTE MINIMUM LEVEL OF SUPPORT NEEDED TO KEEP THE SYSTEM RELIABLE AND EFFICIENT.

MR. CHAIRMAN, WATERWAY TRANSPORTATION CONSUMES LESS FUEL PER TON-MILE OF CARGO HAULED THAN AIRLINES, RAILROADS, OR TRUCKS. THEREFORE, MAINTAINING A VIABLE WATERWAY TRANSPORTATION INFRASTRUCTURE ASSISTS IN REDUCING THIS NATION'S DEPENDENCE ON FOREIGN FOSSIL FUELS.

I SUPPORT THE PROJECTS OF THE WARRIOR-TOMBIGBEE DEVELOPMENT ASSOCIATION AND I URGE THE COMMITTEE TO APPROVE THE REQUESTED FUNDING SET FORTH TODAY.

THANK YOU, MR. CHAIRMAN.

PREPARED STATEMENT OF HOWELL HEFLIN—FUNDS FOR THE TENNESSEE-TOMBIGBEE WATERWAY

MR. CHAIRMAN, I THANK YOU FOR THIS OPPORTUNITY TO APPEAR BEFORE YOUR SUBCOMMITTEE ON BEHALF OF THE TENNESSEE-TOMBIGBEE WATERWAY.

IN CONSIDERING WHAT PROJECTS TO FUND, I WOULD LIKE TO EMPHASIZE THAT SEVERAL RECENT STUDIES WHICH MEASURED THE ECONOMIC RETURNS WHICH ACCRUE TO SOCIETY, AND ARE REFLECTED IN INCREASED LEVELS OF REVENUE TO GOVERNMENTAL UNITS, FROM FEDERAL INFRASTRUCTURE INVESTMENT REPEATEDLY SHOW THAT THE HIGHEST RATE OF RETURN PER TAX DOLLAR SPENT IS ON OPERATIONS AND MAINTENANCE OF CURRENT ASSETS IN THE STOCK OF PUBLIC CAPITAL.

I, THEREFORE, STRONGLY RECOMMEND THAT THE OPERATION AND MAINTENANCE OF THE CURRENT STOCK OF PUBLIC ASSETS RECEIVE THE HIGHEST PRIORITY IN THE ALLOCATION OF LIMITED RESOURCES. THESE FUNDS ARE NECESSARY IN ORDER TO MAINTAIN THE SUBSTANTIAL INVESTMENT MADE IN THE TENNESSEE-TOMBIGBEE WATERWAY BY THE FEDERAL GOVERNMENT IN PAST YEARS.

I RESPECTFULLY REQUEST THAT YOU SUPPORT THE BUDGET REQUEST FOR THE TENN-TOM WATERWAY. THIS LEVEL OF FUNDING IS ADEQUATE TO PROPERLY MAINTAIN THE WATERWAY. THE BUDGET REQUEST WILL ALSO PERMIT THE COMPLETION OF THE ACQUISITION OF WILDLIFE MITIGATION LANDS AS AUTHORIZED BY THE CONGRESS. THE WILDLIFE MITIGATION PROGRAM IS AN EFFECTIVE INVESTMENT IN THE ENVIRONMENT OF THE AREA.

I SUPPORT THE PROJECTS ALONG THE TENNESSEE-TOMBIGBEE WATERWAY AND I URGE THE COMMITTEE TO APPROVE THE REQUESTED FUNDING SET FOURTH TODAY.

THANK YOU, MR. CHAIRMAN.

PREPARED STATEMENT OF HOWELL HEFLIN—FUNDS FOR THE COOSA-ALABAMA WATERWAY

MR. CHAIRMAN, THANK YOU FOR THIS OPPORTUNITY TO APPEAR AGAIN BEFORE THIS SUBCOMMITTEE ON BEHALF OF THE COOSA-ALABAMA WATERWAY AND MOBILE HARBOR. BECAUSE OF YOUR CROWDED AGENDA, MY REMARKS WILL BE BRIEF.

IN THE LIGHT OF OUR GROWING NATIONAL DEBT AND THE STREAMLINING OF INDUSTRIES TO BECOME MORE COMPETITIVE, IT SHOULD BE NOTED THAT WATERWAYS PROVIDE EFFICIENT TRANSPORTATION PRODUCTIVITY. A REDUCTION IN A MANUFACTURER'S TRANSPORTATION COSTS LEADS TO LOWER PRICES WHICH CAN BE PASSED ON TO CONSUMERS. IN ADDITION, LOWER FREIGHT RATES ARE IN THE NATIONAL INTEREST AS MANUFACTURERS AND FARMERS STRIVE TO COMPETE WITH INTERNATIONAL INTERESTS, AND THUS IMPACT OUR BALANCE OF PAYMENTS.

THE SUCCESS OF EXTENSIVE COMMITMENTS TO STIMULATE PRIVATE INVESTMENT OF NAVIGABLE WATERWAYS IS CONTINGENT UPON THE CONTINUED FEDERAL OPERATIONS AND MAINTENANCE OF THE WATERWAYS. THEREFORE, IT IS IMPORTANT THAT FUNDING IS AVAILABLE FOR CONTINUED TIMELY AND COMPLETE DREDGING OF THE ALABAMA RIVER CHANNEL ALONG WITH MAINTENANCE AND OPERATION OF THE ALABAMA RIVER WATERWAY FROM MOBILE TO MONTGOMERY, INCLUDING MOBILE HARBOR.

SPECIFICALLY, I REQUEST YOUR SUPPORT IN THE FOLLOWING AREAS:

- 1) ADEQUATE OPERATIONS AND MAINTENANCE FUNDING TO MAINTAIN THE ASSETS IN THE COOSA-ALABAMA BASINS AS WELL AS THE MOBILE HARBOR.
- 2) FUNDING FOR THE FOURTH LOCK & DAM STUDY,
- 3) REOPENING OF THE COOSA NAVIGATION PROJECT,
- 4) TO RESIST ANY ATTEMPT TO RAISE THE USER FUEL TAX ON THE INLAND RIVER NAVIGATION INDUSTRY,
- 5) CONTINUED SUPPORT FOR THE TRI-STATE COMPREHENSIVE WATER ALLOCATION STUDY, AND
- 6) AMENDMENT OF THE ENDANGERED SPECIES ACT OF 1973 TO REQUIRE AN ECONOMIC ANALYSIS DURING LISTING OF SPECIES AND TO ESTABLISH A BALANCE TO THE PROSECUTION OF A LISTING.

STUDIES OF COMPLETED WATERWAYS, SUCH AS THE ARKANSAS RIVER AND THE GULF INTRACOASTAL WATERWAY, SHOW THAT THE RETURNS FROM FEDERAL FUNDING FULLY JUSTIFY THE INVESTMENT.

THANK YOU, MR. CHAIRMAN.

PREPARED STATEMENT OF CONGRESSMAN SONNY CALLAHAN

It is always a pleasure to submit testimony to this panel, and I appreciate the opportunity to do so again this year in support of fiscal year 1996 funding of water resources development projects in the First Congressional District of Alabama and in other parts of the state and region.

The Bayou La Batre channel deepening project is of special personal interest to me, and I am grateful for the support the subcommittee has consistently given. The community has worked extremely hard to uphold its responsibility for the project. Bayou La Batre is a major seafood and shipbuilding center. In recent years it has become a critical site for offshore natural gas development. The natural gas reserves in Mobile Bay and offshore of our coastline are projected to be some of the largest fields discovered in the United States in some time. Related activities have centered in Bayou La Batre which is, unfortunately, not well-equipped to handle shipping traffic. Better access is critical, and the channel deepening project will facilitate this activity for the benefit of the entire State of Alabama. I hope the committee will approve \$1 million for continued construction funding for the Bayou La Batre channel.

Another project that I am proud of is the Tennessee-Tombigbee Wildlife Mitigation program. I appreciate the committee's previous support for the program and urge its continued endorsement. The Tenn-Tom mitigation program differs from most mitigation projects in two ways. First, it directs that property may be purchased only from willing sellers. Second, the program is administered by state officials. These provisions have made the program acceptable to the public, and I believe future mitigation plans should incorporate similar conditions. I urge the committee's continued support for this project and its approval of the budget request of \$12.4 million.

Construction of navigation improvements on the Black Warrior-Tombigbee in the vicinity of Jackson, Alabama, is critical and will establish a port at Jackson. \$500,000 has been requested for this project and I urge approval of this amount.

The First Congressional District of Alabama is blessed with abundant water resources which support the livelihood of thousands of families and provide recreational benefits to our residents and visitors. Maintenance of these waterways is critical to the movement of commodities and enhances our efforts to reduce the United States' trade deficit. I strongly encourage the committee to favorably consider the Corps' budget request for operation and maintenance funding for the following projects:

Mobile Harbor: \$17,780
 Bayou La Batre Channel: \$455,000
 Gulf Intracoastal Waterway: \$3,172,000
 Alabama-Coosa River System: \$5,668,000
 Black Warrior-Tombigbee Rivers: \$16,820
 Dauphin Island Bay: \$252,000
 Henry Lock and Dam: \$3,688,000
 Millers Ferry Lock and Dam: \$5,156,000
 Bayou Coden: \$231,000
 Perdido Pass Channel: \$350,000
 Tennessee-Tombigbee Waterway: \$21,090,000
 Fly Creek: \$249,000
 Dog and Fowl Rivers: \$505,000

Another essential item in the budget request is the \$238,000 for the Alabama-Coosa-Tallapoosa and Apalachicola-Chattahoochee-Flint Rivers Comprehensive Water Study. Continued study will help us better understand the water needs of the states of Alabama, Georgia, and Florida. Absent a comprehensive understanding of this controversial issue, I fear disputes between these states will continue. This matter must be resolved, and continued funding will be helpful in that regard.

Again, I am pleased to have the chance to make my interests known. I commend the Chairman and the subcommittee members for the fine work they perform for this nation and for the service I am confident they will continue to provide.

PREPARED STATEMENT OF J. THOMAS MC KENZIE, PRESIDENT, COOSA-ALABAMA RIVER IMPROVEMENT ASSOCIATION, INC.

SUMMARY

MR. CHAIRMAN & DISTINGUISHED COMMITTEE MEMBERS:

THIS STATEMENT INCLUDES THE FOLLOWING:

- A) A PLEA TO EXERCISE CAUTION AND DUE DELIBERATION BEFORE MAKING CUTS IN OUR NATION'S TRANSPORTATION SYSTEM.
- B) SUPPORT IN THE FOLLOWING AREAS:
 - 1) O&M FUNDING FOR THE COOSA-ALABAMA BASINS AS WELL AS MOBILE HARBOR.
 - 2) FUNDING FOR THE FOURTH LOCK & DAM STUDY;
 - 3) REOPENING THE COOSA NAVIGATION PROJECT.
 - 4) RESISTING ANY ATTEMPT TO RAISE USER FUEL TAX ON THE INLAND RIVER NAVIGATION INDUSTRY;
 - 5) CONTINUED SUPPORT FOR THE TRI-STATE COMPREHENSIVE WATER ALLOCATION STUDY.
 - 6) AMENDING THE ENDANGERED SPECIES ACT OF 1973 TO REQUIRE AN ECONOMIC ANALYSIS DURING LISTING AND TO ESTABLISH A BALANCE TO THE PROSECUTION OF A LISTING.

* * * * *

EXPANDED STATEMENT

THANK YOU FOR THE OPPORTUNITY TO PRESENT TO THIS SUBCOMMITTEE MY PERSPECTIVE ON SEVERAL TOPICS OF INTEREST TO THOSE WHO ARE INVOLVED IN THE PROMOTION OF OUR NATION'S WATERWAYS IN GENERAL, AND TO THE MEMBERS OF THE COOSA-ALABAMA RIVER IMPROVEMENT ASSOCIATION IN PARTICULAR. AS PRESIDENT OF THE ASSOCIATION, I SPEAK FOR A LARGE AND DIVERSE GROUP OF PRIVATE CITIZENS AND POLITICAL AND INDUSTRIAL ORGANIZATIONS WHO SEE THE CONTINUED DEVELOPMENT OF THE COOSA-ALABAMA WATERWAY AS AN OPPORTUNITY FOR ECONOMIC GROWTH IN OUR REGION AS WELL AS THE NATION.

OUR MEMBERSHIP REFLECTS A BROAD RANGE OF CALLINGS AND PROFESSIONS, EACH WITH A WELL-DEFINED INTEREST IN WATERWAY DEVELOPMENT. SOME USE THE WATERWAY NOW, EITHER AS SHIPPER OR TOW OPERATORS WHILE OTHERS ARE BUSINESSMEN, BANKERS AND A VARIETY OF OTHER PRIVATE INDIVIDUALS WHO HAVE A STAKE IN FUTURE ECONOMIC DEVELOPMENT FOR THEIR FIRMS AND SUCCESSORS TO ENJOY. THEN THERE IS A LARGER GROUP OF ELECTED OFFICIALS AND THEIR CONSTITUENTS TYPICAL

OF THE TWENTY-THREE MUNICIPALITIES AND NINETEEN COUNTIES ALONG THE WATERWAY WHO ARE MEMBERS OF THIS ASSOCIATION. THESE MEMBERS ARE WORKING DILIGENTLY TO DEVELOP OUR WATERWAY INTO A PRODUCTIVE PART OF THE RIVER INFRASTRUCTURE OF THE STATE AND NATION. THEIR EFFORTS SPRING FROM A DESIRE NOT ONLY TO IMPROVE THE ECONOMIC CONTRIBUTION OF ENHANCED TRANSPORTATION AVAILABLE TO USERS, BUT TO PROVIDE A MEANS OF GROWTH.

I WOULD LIKE TO PREFACE OUR REQUESTS FOR SPECIFIC FUNDING LINES WITH A FEW REMARKS REGARDING THE MOOD AND TONE OF BUDGET CUTTING EXERCISES WITHIN THE FEDERAL GOVERNMENT, AS THEY APPLY TO OUR NATION'S WATERWAYS.

AS AN ASSOCIATION OF BUSINESSES, MUNICIPALITIES AND PRIVATE INDIVIDUALS WE APPLAUD THE EFFORTS OF THE PRESIDENT AND CONGRESS TO REDUCE THE FEDERAL DEFICIT THROUGH REAL SPENDING CUTS. HOWEVER, WE URGE CAUTION AND DUE DELIBERATION BEFORE MAKING CAPRICIOUS AND ARBITRARY CUTS INTO THE NATION'S TRANSPORTATION SYSTEM. TRANSPORTATION NETWORKS ARE VITAL TO THIS NATION'S WELFARE, AND AS SUCH, THEIR MAINTENANCE AND IMPROVEMENT ARE INCUMBENT ON THE FEDERAL GOVERNMENT. WHERE IT MAKES SENSE FOR STATES OR PRIVATE ENTERPRISE TO TAKE OVER FEDERAL RESPONSIBILITIES, THEN LET'S DO IT, BUT THE DECISION SHOULD BE BASED ON WHAT'S BEST IN THE WATERWAYS SYSTEM, FOR THE NATION IN THE LONG RUN, NOT PURELY ON THE MONEY FACTOR, CHANGE FOR CHANGE SAKE, OR SIMPLE EXPEDIENCY. MOST, AND MOST LIKELY ALL, STATES ARE NOT IN THE POSITION TO ABSORB ADDITIONAL RESPONSIBILITIES SUCH AS FLOOD CONTROL OR PERMITTING WITHOUT ADDITIONAL RESOURCES. WITHOUT THOSE RESOURCES, WE WOULD PROBABLY SEE A DEGRADATION OF THE WATERWAYS NETWORK AND A CERTAIN DISINCENTIVE FOR INVESTMENT. IF THAT WERE THE CASE, THEN WE WOULD BE WISE TO RETAIN FEDERAL CONTROL.

SOME THINK TANKS ARE ADVOCATING TURNING THE CORPS OF ENGINEERS' CIVIL WORKS PROGRAM OVER TO STATE OR PRIVATE MANAGERS. AGAIN, WE URGE CAUTION AND DUE DELIBERATION IN SUCH A MOVE. HAVING ONE AGENCY RESPONSIBLE FOR MAINTAINING THE LOCKS AND DAMS ON THE ALABAMA RIVER, FOR EXAMPLE, PROVIDES BENEFITS THAT CAN'T BE MEASURED IN DOLLARS AND CENTS. SECURITY, RESPONSIVENESS AND HISTORICAL KNOWLEDGE ARE INCALCULABLE TO USERS OF THE RIVER. THE CORPS' EXPERIENCE AND THE O&M FUNDING THAT SUPPORTS THAT EXPERIENCE ARE PUBLIC INVESTMENTS IN INFRASTRUCTURE. SLASHING THAT INVESTMENT DOES NOT AUTOMATICALLY TRANSLATE INTO PRIVATE PROSPERITY.

WITH THAT BEING SAID, MR. CHAIRMAN, IN THESE TIMES OF TIGHT BUDGETS AND, HOPEFULLY, MORE FISCAL RESPONSIBILITY, IT IS IMPERATIVE THAT, WITHIN ANY APPROPRIATION, PRIORITIES BE SET TO ENSURE THE LONG TERM ECONOMIC GROWTH AND DEVELOPMENT OF THE RIVER SYSTEM. WE ARE CONCERNED THAT ANY BUDGET STRATEGY THAT REDUCES FUNDING FOR THE OPERATIONS AND MAINTENANCE OF INLAND AND INTRACOASTAL WATERWAYS WILL HAVE A DETRIMENTAL EFFECT ON THAT ECONOMIC GROWTH AND DEVELOPMENT. WE CANNOT ALLOW THAT TO HAPPEN. IN THE ALABAMA-COOSA RIVER BASIN, WE MUST BE ABLE TO MAINTAIN THE EXISTING RIVER PROJECTS AND FACILITIES THAT SUPPORT THE COMMERCIAL NAVIGATION, HYDROPOWER AND RECREATIONAL ACTIVITIES SO CRITICAL TO OUR REGION'S ECONOMY. THE FIRST PRIORITY MUST BE THE O&M FUNDING APPROPRIATED TO THE CORPS OF ENGINEERS TO MAINTAIN THOSE PROJECTS ON THE ALABAMA AND COOSA RIVERS THAT PERPETUATE NAVIGATION, HYDROPOWER AND FLOOD CONTROL. BUDGET REQUESTS FOR THE INDIVIDUAL PROJECTS ARE LISTED ON THE FOLLOWING PAGE:

<u>PROJECT</u>	<u>ASSOCIATION'S BUDGET REQUEST</u>
ALABAMA-COOSA RIVER, AL* (AL RIVER INCL CLAIBORNE L&D)	\$ 5,668,000
MILLER'S FERRY L&D**	\$ 5,156,000
ROBERT F. HENRY L&D***	\$ 3,688,000
MOBILE HARBOR	\$ 17,780,000
LAKE ALLATOONA, GA	\$ 5,894,000
CARTER'S LAKE, GA	\$ 5,218,000
LOWER ALABAMA NAVIGATION STUDY (AL RIVER SOUTH OF CLAIBORNE) - RECONNAISSANCE PHASE	\$ 238,000
TOTALS	\$ 43,642,000

*INCLUDES 72 MILES FROM THE MOUTH OF THE ALABAMA RIVER THROUGH CLAIBORNE L&D TO MILLER'S FERRY. COOSA RIVER NOT INCLUDED. ALSO INCLUDES MONIES FOR LAND ACQUISITION AND MONITORING PROGRAMS.

**INCLUDES FUNDING TO BEGIN GENERATOR REWINDING PROJECT.

***INCLUDES FUNDING TO COMPLETE GENERATOR REWINDING PROJECT.

REHABILITATION OF EXISTING FACILITIES, MAINTENANCE DREDGING AND MODIFICATION OF TRAINING DIKES ARE INCORPORATED INTO THESE REQUESTS, AND ARE CRITICAL TO KEEPING THE WATERWAY PRODUCTIVE AND IN A POSITION TO ATTRACT NEW BUSINESS AND INDUSTRIAL TRAFFIC.

TO ATTRACT NEW BUSINESS AND INDUSTRIAL TRAFFIC, WE MUST IMPROVE THE INFRASTRUCTURE OF THE RIVER SYSTEM. WE FULLY SUPPORT THE FUNDING THAT ALLOWS THE CORPS OF ENGINEERS TO STUDY WAYS TO IMPROVE THE NAVIGATIONAL RELIABILITY OF THE LOWER ALABAMA RIVER BELOW CLAIBORNE DAM. WE THINK THE MOST EFFECTIVE AND, IN THE LONG RUN, THE MOST BENEFICIAL WAY TO INCREASE THAT RELIABILITY IS BY CONSTRUCTION OF A FOURTH LOCK AND DAM AT THE APPROPRIATE SITE. INCREASED RELIABILITY IS THE ONLY WAY PROSPECTIVE INVESTORS WILL ENTERTAIN ESTABLISHING AN INDUSTRY THAT USES THE RIVER FOR TRANSPORTATION.

IN THE SAME VEIN, ONE OF THE ASSOCIATION'S MAJOR OBJECTIVES, MR. CHAIRMAN, IS THE COMPLETION OF THE COOSA RIVER NAVIGATION PROJECT. EACH OF US HERE KNOWS THE HISTORY OF THE ATTEMPT TO ESTABLISH THE NAVIGATION CHANNEL CONNECTING MONTGOMERY, GADSDEN AND ROME, GEORGIA, SO I WON'T REVIEW THAT HISTORY, BUT THE PROPOSAL IS IN LINE WITH OUR EMPHASIS ON BOTH INFRASTRUCTURE INVESTMENT AND THE CREATION OF JOBS AND ECONOMIC OPPORTUNITY THROUGHOUT OUR REGION. PLEASE REMEMBER THAT THE PRE-DESIGN ENGINEERING SURVEYS ARE COMPLETE, SO THAT ONE OF THE MOST TIME-CONSUMING REQUIREMENTS OF THE PROJECT IS ALREADY ON-THE-SHELF. WITH PROPER INITIAL FUNDING, THE PROJECT COULD BE UNDERTAKEN IN A RELATIVELY SHORT TIME. ESTIMATES FOR COMPLETION VARY, BUT 7 YEARS WITH EMPLOYMENT POTENTIAL OF 12,000 JOBS WOULD BE ANTICIPATED.

SEVERAL ADVANTAGES WOULD ACCRUE AS A RESULT OF EFFORTS TO REESTABLISH THE PROJECT:

- 1) THIS WOULD BE ONE OF THE LARGEST AND MOST RAPID GENERATORS OF JOBS CURRENTLY AVAILABLE.

- 2) THE COOSA RIVER NAVIGATION PROJECT WOULD ENERGIZE A LARGE SECTION OF ALABAMA AND A SMALLER PORTION OF GEORGIA THAT REPRESENT SUBSTANTIAL GROWTH POTENTIAL.
- 3) THE PRESIDENT'S CONTENTION THAT NOW IS THE TIME FOR INFRASTRUCTURE INVESTMENT WOULD BE SUPPORTED.
- 4) THE WATERWAY CONNECTION FROM THE PORT OF MOBILE TO ITS INDUSTRIAL MARKETS IN THE NORTHEAST ALABAMA AND NORTHWEST GEORGIA WOULD BE COMPLETE.

ANOTHER MECHANISM TO MAKE THE RIVER SYSTEM ATTRACTIVE TO POTENTIAL USERS IS TO KEEP THE COST OF SHIPPING VIA WATERWAYS DOWN. THE PRESIDENT'S BUDGET FOR FY96 DOES NOT CURRENTLY INCLUDE A PROPOSAL TO INCREASE A USER'S FUEL TAX, BUT WE ARE WELL AWARE THAT THAT PROPOSAL IS STILL IN THE MINDS OF SOME IN THE ADMINISTRATION. WE HAVE IN THE PAST LISTED SOME OF THE NEGATIVE ASPECTS OF SUCH A PROPOSAL, SO SUFFICE IT TO SAY HERE THAT AN INCREASE IN USER FUEL TAX WILL HAVE DETRIMENTAL EFFECT IN THE SHORT RUN ON CONSUMER PRICES AND TRADE BALANCE, AND IN THE LONG RUN ON THE FEDERAL-PRIVATE PARTNERSHIP AND MAINTENANCE OF THE WATERWAYS SYSTEM.

AS ONE OF THE MOST EFFICIENT MODES OF TRANSPORTATION THIS COUNTRY POSSESSES, THE WATERWAY SYSTEM NEEDS MORE INCENTIVES FOR INVESTMENT, NOT OBSTACLES AND DISINCENTIVES.

MR. CHAIRMAN, THERE ARE TWO OTHER ISSUES I WISH TO ADDRESS. ONE OF THE MOST VISIBLE PROJECTS FOR WHICH FUNDING HAS BEEN USED IN THE PAST THREE YEARS IS THE COMPREHENSIVE STUDY OF THE ALABAMA-COOSA-TALLAPOOSA AND THE APALACHICOLA-CHATTAHOCHEE-FLINT RIVER BASINS. THIS STUDY, WHICH WILL IDENTIFY A MECHANISM BY WHICH THE GOVERNORS OF ALABAMA, GEORGIA AND FLORIDA PLUS THE CORPS OF ENGINEERS CAN COORDINATE A REASONABLE DISTRIBUTION OF THE WATER SUPPLY OF THE TWO BASINS, NEEDS TO HAVE SUPPORT IN THIS BUDGET TO MEET ITS OBJECTIVE. SINCE THE ISSUE OF WATER DISTRIBUTION WAS RAISED IN 1989, WE HAVE SUPPORTED THE DEVELOPMENT OF SUCH A MECHANISM, AN ESSENTIAL ELEMENT IN THE FUTURE ENVIRONMENTAL AND ECONOMIC WELL-BEING OF THE THREE STATES.

THE LAST ISSUE I WISH TO ADDRESS IS A PLEA BASED ON OUR EXPERIENCES OVER THE PAST FOUR YEARS WITH ATTEMPTS BY THE FISH AND WILDLIFE SERVICE TO LIST THE ALABAMA STURGEON AS ENDANGERED UNDER THE ENDANGERED SPECIES ACT OF 1973. AS YOU KNOW, IN DECEMBER OF 1994, THE SECRETARY OF INTERIOR, MR. BABBITT, DECIDED NOT TO LIST THE ALABAMA STURGEON, CITING A LACK OF SCIENTIFIC EVIDENCE THAT THE FISH WAS A SEPARATE AND DISTINCT SPECIES OR EVEN CURRENTLY EXISTED IN THE HABITAT SCRUTINIZED. I WON'T GO INTO THE LONG, AND OFTEN BEWILDERING, STORY THAT EVOLVED BEFORE MR. BABBITT'S DECISION, BUT I WANT TO POINT OUT THE POTENTIALLY DEVASTATING EFFECT POSSIBLE WHEN ONE AGENCY, SUCH AS FISH AND WILDLIFE SERVICE, BECOMES THE PROSECUTOR, JUDGE, JURY AND EXECUTIONER OF ANY PROPOSAL UNDER THE ENDANGERED SPECIES ACT. THERE IS NO BALANCE IN THE SYSTEM. ECONOMIC AND SOCIAL FACTORS ARE NOT EVEN CONSIDERED UNTIL A LISTING IS MADE. HISTORY HAS SHOWN US THAT, DESPITE ASSURANCES OF "NO EFFECT" OR "MINIMAL IMPACT" ON ECONOMIC AND OPERATIONAL CONSIDERATION ASSOCIATED WITH A LISTING, THE OPPOSITE HAS OFTEN BEEN THE CASE. THE ECONOMIC AND SOCIAL FACTORS, PREPARED BY A BODY SEPARATE BUT EQUAL IN AUTHORITY TO FWS MUST BE ADDRESSED DURING THE PROPOSAL STAGE, NOT AFTER A LISTING IS APPROVED. THE SECRETARY OF INTERIOR, OR WHOEVER MAKE THE FINAL DECISION, MUST HAVE ALL OF THE PROS AND CONS OF A PROPOSAL BEFORE DECIDING WHAT IS BEST FOR THE PEOPLE AFFECTED BY SUCH A PROPOSAL. THEREFORE, WE FULLY SUPPORT AMENDING THE ENDANGERED SPECIES ACT TO REFLECT THE PROVISIONS I HAVE JUST DESCRIBED. IN ADDITION, THE FISH & WILDLIFE SERVICE PROPOSES TO SPEND \$100,000 TO CONTINUE SEARCHING FOR THE ALABAMA STURGEON, EVEN THOUGH THE SECRETARY OF INTERIOR DECLINED TO LIST THE FISH IN THE ORIGINAL PROPOSAL. THIS IS A PERFECT EXAMPLE OF A

GOVERNMENTAL AGENCY WASTING TAX PAYER MONEY, NOT TO MENTION THE HUNDREDS OF THOUSANDS DOLLARS EXPENDED BY THE PRIVATE SECTOR BUSINESSES TO COMBAT AN ILL-CONCEIVED PLAN IN THE FIRST PLACE. THE FUNDS FOR VENTURES SUCH AS THIS BY THE FISH & WILDLIFE MUST BE CUT OFF.

IN CLOSING, WE REQUEST YOUR SUPPORT IN THE FOLLOWING AREAS:

- 1) O&M FUNDING FOR THE COOSA-ALABAMA BASINS AS WELL AS MOBILE HARBOR.
- 2) FUNDING FOR THE FOURTH LOCK AND DAM STUDY;
- 3) REOPENING THE COOSA NAVIGATION PROJECT.
- 4) RESISTING ANY ATTEMPT TO RAISE USER FUEL TAX ON THE INLAND RIVER NAVIGATION INDUSTRY;
- 5) CONTINUED SUPPORT FOR THE TRI-STATE COMPREHENSIVE WATER ALLOCATION STUDY.
- 6) AMENDING THE ENDANGERED SPECIES ACT OF 1973 TO REQUIRE AN ECONOMIC ANALYSIS DURING LISTING AND TO ESTABLISH A BALANCE TO THE PROSECUTION OF A LISTING.

WE SINCERELY APPRECIATE THE OPPORTUNITY TO SPEAK BEFORE YOUR SUBCOMMITTEE AND WISH TO EXPRESS OUR GRATITUDE TO YOU AND OTHER MEMBERS OF YOUR COMMITTEE, ESPECIALLY MR. TOM BEVILL, FOR YOUR STRONG SUPPORT OF THE NATION'S WATERWAYS. YOUR CONCERN AND GRACIOUS ATTENTION TO OUR ISSUES GIVE US A DEEP SENSE OF SATISFACTION AND A RAY OF HOPE TO THOSE WHO HAVE THE VISION TO PLAN FOR THE FUTURE.

RESPECTFULLY,

J. THOMAS MCKENZIE, PRESIDENT
COOSA-ALABAMA RIVER IMPROVEMENT ASSOCIATION
MONTGOMERY, ALABAMA

The Honorable John T. Myers, Chairman
Subcommittee on Appropriations for
Energy and Water Development
United States House of Representatives
Washington, D.C. 20515

March 21, 1995

Dear Chairman Myers:

Thank you, for allowing the State of Alabama the opportunity to provide our views to the Subcommittee on Appropriations for Energy and Water Development concerning the Federal water resources activities and projects in Alabama. I join with the several Associations and Authorities; the Tennessee-Tombigbee Waterway Development Authority; the Warrior-Tombigbee Development Association; the Coosa-Alabama River Improvement Association; the Tri-Rivers Waterway Development Association; the Tennessee River Valley Association and others in support of continuation of the Federal water resource projects in Alabama.

Our state and Nation have been blessed with water resources which lend themselves to development and use for the benefit of our citizens. Water resource development in Alabama includes the deep harbor and extensive port facilities at the Port of Mobile, providing export opportunities for the region and nation's products; the Tennessee-

Tombigbee Waterway providing an important connecting link to the inland waterway system and the heartland of our nation; the Warrior-Tombigbee Rivers waterway providing opportunities to utilize our abundant coal resources for our domestic use and export of steel, pipe and other products; the Coosa-Alabama and the Chattahoochee-Apalachicola waterway providing the opportunity for development, transportation of natural resources, agricultural and forest products; the Tennessee River waterway providing a vital transportation link in the Tennessee River Valley of Alabama, and the Gulf Intracoastal Waterway providing a vital waterway link to the ports of the Gulf of Mexico and the remainder of the inland waterway system. All of the waterways in Alabama are connected to and are an integral part of, our Federal inland waterway transportation system providing a conduit for the economical and safe movement of commerce.

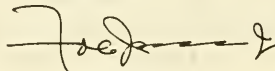
I respectfully request your consideration and assistance by providing the Federal funds necessary for full time operation of the Federal waterway facilities and projects in Alabama. The continued Federal support is necessary to ensure the continuation of these projects and to allow for use of these important facilities, both public and private. The Federal funding, while a critical element, is however, only a portion of the investment and commitment necessary to utilize this resource? A combination of local investment, both private and public, is necessary to gain benefits for our citizens through utilization of our water resources.

On January 3, 1992, the States of Alabama, Florida, Georgia and the U.S. Army Corps of Engineers signed a Memorandum of Agreement (MOA), concerning interstate water resources issues in the Alabama-Coosa-Tallapoosa (ACT) and the Apalachicola-Chattahoochee-Flint (ACF) River Basins. The agreement was to terminate on September 30, 1995. However, by mutual agreement of the parties, the MOA will be extended for one full year to September 30, 1996. The four partners have agreed in principal to this necessary extension and the implementing language is being developed. The MOA, temporarily set aside the interstate dispute between the parties, while we jointly participate in the ACT/ACF Comprehensive Water Resources Study as full and equal partners. This joint study is to determine the availability, the current use, and future demand for water in this region. Hopefully, the study will also recommend an appropriate management structure for the ACT and ACF interstate water resources. As Alabama has previously stated, we are committed to insuring this study is accomplished in such a way that all parties can support the study findings.

With the continued endorsement of the Subcommittee, in providing the Federal funding necessary for the Federal water resources projects in Alabama, I believe we can successfully address the complex issues facing us and utilize the water resources to the benefit of the Nation.

Thank you, and the other members of the Subcommittee, for your support of the Federal water resource projects and activities in Alabama and the Nation.

Sincerely,



Fob James Jr.
Governor

The Hon. Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
for Energy and Water Development
U. S. Senate
427 Dirksen Senate Building
Washington, DC 20510

March 3, 1995

Dear Senator Domenici:

As part of a collective effort to maintain and extend the Coosa-Alabama waterway, I wholeheartedly support the Coosa-Alabama River improvement Association's requests for FY96.

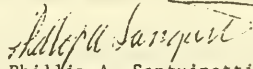
It is very important that the design and engineering on the Coosa Project, which was suspended in 1983, be resumed and that timely and complete dredging be continued.

I also urge you and other members of the committee to support efforts to make the Alabama River useable year-round by investing in a fourth dam in the area south of Claiborne.

As you know, extensive commitments to private investment on navigable waterways have been made on the assumption that Federal maintenance and operations of the waterways would be continued. Waterways do provide efficient transportation productivity that lowers inflation and reduces national deficits.

Any support you and your committee can give the Association will be greatly appreciated by everyone involved.

Very truly yours,


Phillip A. Sanguinetti

Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
for Energy and Water Development
U. S. Senate
427 Dirksen Senate Building
Washington, D. C. 20510

March 21, 1995

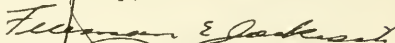
Dear Chairman Domenici,

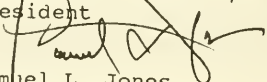
We would like to take this opportunity to express our continuing support for federal maintenance of the Mobile harbor. Throughout its history, water born commerce has played an integral role in the economic and cultural development of Mobile County. Many segments of our diverse economy are directly related to and dependent upon accessibility to water transportation.


Located at the terminus of the Tennessee-Tombigbee Waterway, the harbor is a transshipment point serving millions of Americans. As such its purpose and utility is felt well beyond the borders of Alabama.

We strongly urge the entire Congress to give its most serious consideration to continued federal maintenance of this waterway in light of its invaluable contribution to the national economy.

Sincerely,


Freeman E. Jockisch,
President


Samuel L. Jones,
Commissioner


Gary G. Tanner,
Commissioner

Hon. Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
for Energy and Water Development
U. S. Senate
427 Dirksen Senate Building
Washington, D.C. 20510

March 21, 1995

Dear Senator Domenici:

As a former resource manager for the Corps of Engineers on the Alabama River, I support the Coosa-Alabama River Development Association, Inc. in its efforts to secure funds for the Coosa-Alabama River Project for FY 96.

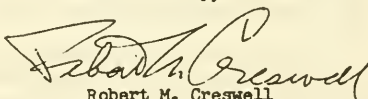
In addition to continuing operation and maintenance of the upstream reservoirs and power plants at Allatoona and Carters Lakes, it is essential that the Alabama River waterway be maintained from Mobile to Montgomery and that timely maintenance dredging of the navigation channel be continued.

Investors in various types of industrial plants were assured of a 9-foot navigation channel and their success depends upon its continued presence. The U. S. Congress should authorize the funding of the remaining term of the study by the Corps of Engineers and Alabama/Georgia/Florida to resolve the two-basin water dispute.

In addition, Congress should direct the Fish & Wildlife Service to develop procedures in which information is shared, as well as specimens, with parties closely related to the listing process.

I urge the subcommittee to recommend sufficient funds to accomplish all of the above.

Yours Sincerely,


Robert M. Creswell

The Honorable Pete V. Domenici, Chairman
 Senate Subcommittee on Appropriations for Energy and Water Development
 U.S. Senate
 427 Dirksen Senate Office Building
 Washington, D. C. 20510

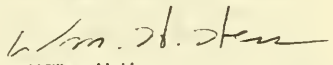
Dear Senator Domenici:

Parker Towing Company is a major regional barge transportation company operating towboats, barges, and port facilities mainly on the rivers and waterways of the Southeast and Gulf Coast. We are proud to be a part of a collective effort to maintain and develop the Coosa - Alabama River System for commercial navigation. We fully support the Coosa-Alabama River Improvement Association's funding request for Fiscal Year 1996. We hope that we can count on your support. We also would like to share some of our concerns with you as follows:

- The increase in fuel taxes has already taken its toll on us as well as the entire industry and it is alarming that this administration seems committed to attempts to increase user fees every year. As user fees and other taxes tend to stifle all business associated with waterway activity, they should be discarded or reduced as revenue generators. In addition, the current fees should be plowed back into river development. We feel this would result in a net gain of revenue to the federal government in the form of taxes paid through increased business activity. Our waterways provide low cost, efficient transportation that lowers inflation and tends to ease upward pressure on the deficit, as well as providing our producers better access to export markets, thus helping the trade balance in America's favor.
- Congress must use every means available to fund the remaining term of the study by the Corps of Engineers and Ala./Fla./Ga. to resolve the two basin water dispute in the region.
- Congress should amend the Endangered Species Act to require the consideration of economic impacts in a decision to list, and also to require designation of critical habitat at the time the species is listed.

We trust that we can expect your support in these matters. Thank you.

Sincerely,



William H. Hess
 Sales Manager

Alabama Power Company appreciates the opportunity to express its support for the request of the Coosa-Alabama River Improvement Association, Inc., before the Congressional Appropriations Subcommittees that adequate funding be appropriated in FY1996 to satisfactorily provide essential O&M and capital improvements to navigable waterways in the state of Alabama by the U.S. Army Corps of Engineers. Proper maintenance and improvement to inland waterways is essential to the economic well-being of the state, as well as supporting international commerce so vital to the region and the Nation.

Navigable inland waterways that provide access to international ports provide an alternative transportation route for bulk and high volume cargo that is essential for economic competition in the international market place. The United States must encourage the utilization of this resource to maintain its desired position in the balance of trade, and the Corps of Engineers must have adequate funding to ensure the proper operation of this navigation system. Waterways provide efficient transportation productivity that lowers inflation and reduces national deficits.

Alabama Power Company utilizes inland waterways to barge coal, petroleum, and other essential commodities to its fossil power plants. This transportation source not only lowers freight costs, but insures supplies

by providing sources from alternative suppliers throughout the country. It is important that timely and appropriate channel maintenance and dredging be performed.

Of special interest to Alabama Power Company is the continued operation and maintenance of the reservoirs and hydroelectric plants at the Allatoona and Carters projects. These reservoirs, in conjunction with other storage reservoirs within the Coosa-Alabama Basin, provide flow essential to ensuring a dependable and adequate supply of electricity for the Southeast, at a reasonable cost, and to supporting navigation flows critical to the operation of the Alabama River navigation channel.

Congress is to be commended for its decision to authorize the Army Corps of Engineers - working in partnership with Alabama, Georgia, and Florida - to conduct a Comprehensive Study of the Alabama, Coosa, and Tallapoosa (ACT) and the Appalachian, Chattahoochee, and Flint (ACF) river basins. Adequate funds must be appropriated to complete this study in a competent and timely manner.

Congress is to be commended for its direct interest and involvement in the issue of the proposal to list the Alabama River Sturgeon as Rare and Endangered, and the companion legislation to declare its critical habitat. Objections raised by the public and by several Congressmen, ultimately resulted in the withdrawal of this listing proposal. Had this listing succeeded, tremendous impact to navigation on the Alabama, Warrior, and Tombigbee waterways would have occurred, with billions of dollars in associated economic losses.

During the ongoing review of the Endangered Species Act, the Congress should amend the Act to require balanced consideration of potential economic impacts and social hardship as a part of the listing process for endangered or threatened species.

Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
for Energy and Water Development
U.S. Senate
427 Dirksen Senate Building
Washington, D.C. 20510

March 14, 1995

Dear Senator Domenici,

The Monroe County Commission respectfully submits its support for the 1996 Funding for the FY 96 maintenance and extension of the Coosa-Alabama Rivers, as submitted by the US Corp of Engineers.

For the full economic impact to be felt by the Counties and Cities in both Alabama and Georgia located along this River System, maintenance of the existing investments in the present Lock & Dams, the maintenance of the navigable Channel, and the future development of the Coosa River from Montgomery to Rome, Georgia is imperative.

We recommend that the design and engineering work on the Coosa Project, which was suspended in 1983 be resumed. Complete dredging and appropriate maintenance of the Alabama River Channel should continue in order for industry to utilize navigation on this river system. We recommend the funding of the remaining term of the study by the Corp of Engineers and Alabama/Georgia/Florida to resolve the two-basin water dispute in the region.

We also recommend that during the reauthorization of the Endangered Species Act, the Congress should amend the Act to require the consideration of economic impacts in a decision to list a species as endangered or threatened as well as mandatory designation of critical habitat at the time the species is listed. In addition, the Congress should direct the Fish & Wildlife Service to develop procedures to objectively share information and specimens with parties closely related to the listing process.

We thank you for your consideration of the funding of the FY96 Budget as supported by the Coosa-Alabama River Improvement Association, Inc. for the continued development and maintenance of the Coosa-Alabama Rivers Waterway Systems.

Respectfully submitted
Monroe County Commission

Otha Lee Biggs
Otha Lee Biggs, President

March 14, 199

Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
for Energy and Water Development
U.S. Senate
427 Dirksen Senate Building
Washington, D.C. 20510

Dear Senator Domenici:

The Monroe County Industrial Development Board is in support of the Coosa-Alabama River Improvement Association's funding requests for fiscal year 1996. Our board is part of a collective group with the common goal of maintaining and extending the waterway. As such, we represent our local employers whose interests in maintaining, improving and extending the waterway are vital to their economic survival and profitability. As a group whose chief focus is to recruit new industry to our region, the navigability of the Alabama River is critical to our success.

We specifically request that Federal maintenance and operation of the Alabama River waterway from Mobile to Montgomery as well as Mobile Harbor be continued. In addition, the investment in a fourth dam in the area south of Claiborne would make the Alabama River useable year-round and would be a point of enhancement for our economic development efforts in this region. Waterways provide efficient transportation and productivity that lowers inflation and reduces national deficits. Enhancement of our local waterways will make our region more attractive to new and expanding industry.

In addition, during the reauthorization of the Endangered Species Act, the Congress should amend the Act to require the consideration of economic impacts in a decision to list a species as endangered or threatened, as well as mandatory designation of critical habitat at the time the species is listed. The treat to list the Alabama sturgeon as an endangered species threatens the economic livelihood of several of our area industries. Therefore we should like this law closely reviewed.

Thank you. in advance for your consideration.

Respectfully submitted,


Harvel Deas, Secretary-Treasurer

March 14, 1995

Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
for Energy and Water Development
U.S. Senate
427 Dirksen Senate Building
Washington, D.C. 20510

Dear Senator Domenici:

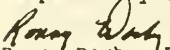
The Monroeville Area Chamber of Commerce is in support of the Coosa-Alabama River Improvement Association's funding requests for fiscal year 1996. Our Chamber of Commerce is part of a collective group with the common goal of maintaining and extending the waterway. As such, we represent our local employers whose interests in maintaining, improving and extending the waterway are vital to their economic survival and profitability.

We specifically request that Federal maintenance and operation of the Alabama River waterway from Mobile to Montgomery as well as Mobile Harbor be continued. In addition, the investment in a fourth dam in the area south of Claiborne would make the Alabama River useable year-round and would be a point of enhancement for our economic development efforts in this region. Waterways provide efficient transportation and productivity that lowers inflation and reduces national deficits. Enhancement of our local waterways will make our region more attractive to new and expanding industry.

In addition, during the reauthorization of the Endangered Species Act, the Congress should amend the Act to require the consideration of economic impacts in a decision to list a species as endangered or threatened, as well as mandatory designation of critical habitat at the time the species is listed. The treat to list the Alabama sturgeon as an endangered species threatens the economic livelihood of several of our area industries. Therefore we should like this law closely reviewed.

Thank you in advance for your consideration of our funding request.

Respectfully submitted,


Ronny Darby, President

Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
for Energy and Water Development
U.S. Senate
427 Dirksen Senate Building
Washington, D.C. 20510

March 21, 1995

Dear Mr. Chairman:

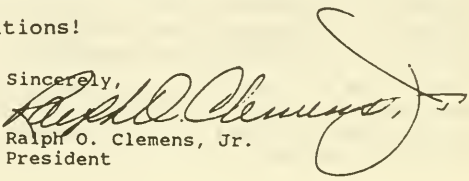
To favor brevity, allow me to list a few points which I consider to be most important when discussing water-related issues.

1. The Endangered Species Act must be revised. Very few Alabamians will quarrel with the basic premises of the act, but the majority will condemn the brutish actions of certain of the Fish and Wildlife community interested less in pure science than in exerting unilateral pressure on legitimate business interests trying to provide jobs and products for thousands of Americans throughout the land. Economic analyses must be part and parcel of the listing process.
2. The study currently undertaken by the states of Georgia, Florida, and Alabama, and aided by the Corps of Engineers, should be continued and used as a model for the cooperative use of water in this country. Request continued funding for this project.
3. There appears to be ample evidence to justify a continued and intensified study of the need for a fourth lock and dam south of Clairborne on the Alabama River. I would like to see a serious effort to continue the upgrade process of the Alabama River -- the lock and dam would provide the reliability that has been needed for so long and would be an integral part of the effort.
4. Please assure continued funding for operations and maintenance activities designed to keep the River in top condition. Only by doing this can we be assured of keeping the users operating on this waterway as well as bringing new businesses into the area.
5. Review the Coosa River Navigation Project for currency and update the engineering studies to enable immediate construction when funding becomes available.

Mr. Chairman, the wise appropriation of available funds is, as you well know, becoming more and more of a challenge to you and your colleagues. It is my firm belief that those federally sponsored and funded activities which contribute to the economic well-being of our nation should assume greater and greater importance in your deliberations. That test is well-met by our requests which I have noted.

Good luck in your deliberations!

Sincerely,


Ralph O. Clemens, Jr.
President

March 21, 1995

Honorable Pete V. Domenici, Chairman
 Senate Subcommittee on Appropriations for
 Energy and Water Development
 United States Senate
 427 Dirksen Senate Building
 Washington, D. C. 20510

Dear Mr. Chairman:

The Montgomery County Commission has a vital interest in the development of the Coosa-Alabama River project which was originally authorized by the Congress in 1945. The benefits which accrue to the citizens of this region, and to the nation, fully justify the complete construction and operation of this economical waterway.

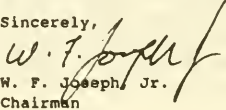
We fully support the testimony provided by the Coosa-Alabama River Improvement Association. For many years this group has represented us and they accurately reflect our feelings of support for this waterway project.

Of particular interest to us is resumed funding for design and engineering work on the Coosa Project, which was suspended in 1983.

The requested appropriation to continue the operation and maintenance of the entire system, including the reservoirs and hydropower plants, is essential to the continuity of this project. We believe this project directly relates to lowered freight rates and improves the export market and creates a positive improvement on our nation's trade balance.

We urge your favorable consideration of the recommended appropriations for FY96. Adequate funding as requested is necessary to insure that progress is made for further development of the system and to properly operate and maintain the existing portion. Similar information has been sent to Honorable John T. Myers, Chairman, House Subcommittee on Appropriations for Energy and Water Development, House of Representatives, regarding this matter.

Sincerely,


 W. F. Joseph, Jr.
 Chairman

Honorable Pete V. Domenici, Chairman
 Senate Subcommittee on Appropriations
 for Energy and Water Development
 U. S. Senate
 427 Dirksen Senate Building
 Washington, D. C. 20510

March 21, 1995

Dear Senator Domenici:

I support the Coosa-Alabama River Improvement Association, Inc. requests for FY96, and I am a part of a collective effort to maintain and extend the waterway.

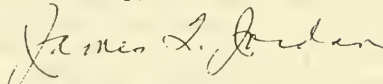
Also, I would like to see the design and engineering work on the Coosa Project, which was suspended in 1993, be resumed. I want to see the continuation of the timely and complete dredging and appropriate maintenance for the Alabama River Channel.

Waterways provide efficient transportation productivity that lowers inflation and reduces national deficits. We all know that the national deficit needs to be addressed.

Since I am a farmer, I, along with so many other people, want to see lowered freight rates. This is in the national interest as manufacturers, as well as the farmers, compete to improve our balance of payments.

Anything that you and the committee can do to continue the improvement of our waterways will be appreciated.

Sincerely,



James T. Jordan

PREPARED STATEMENT OF OFFA S. NICHOLS, JR., PRESIDENT, WARRIOR-TOMBIGBEE DEVELOPMENT ASSOCIATION

I am Offa S. Nichols, Jr., President of the Warrior-Tombigbee Development Association. Our members represent a broad cross-section of shippers, carriers, and the general business community in the Warrior-Tombigbee basin in Alabama, and a dozen other states. The Association began in 1949 to work for the redevelopment of the Warrior-Tombigbee Waterway System. Construction of its original 17 locks and dams began in the late 1870's and was completed in 1915. The navigation system provided by these locks and dams had deteriorated, and following World War II, the annual tonnage had levelled off at 2.5 million tons, due to the condition and limited capacity of these obsolete locks.

Following the Water Resource Development Act of 1986, the first new lock to begin construction was William Bacon Oliver on the Warrior River. Just 51 months later, August 1991, it was the first new lock to open -- two years before any of the others. With the completion of this new lock, the Warrior-Tombigbee Waterway now has modern and standard-sized locks throughout its length, as five other new locks had been built between 1954 and 1975. These six new locks replaced the 17 old, turn-of-the century locks, and today this system represents a most noteworthy example of the positive impact of the water resource development program. The most persuasive evidence of the validity of this project and the wisdom of those who made it possible comes from the record compiled during and following the federal investment in its re-development. During the economic studies which justified these investments, it was projected that by 1980, the Waterway would carry some 8 million tons annually, producing positive benefit to cost ratios. These levels were reached in 1966, and by 1980, twice the projected tonnage was being moved. Traffic has since reached 25 million tons annually, a level three (3) times that which had been projected. Clearly this has been a valid investment in infrastructure.

Subsequently, due in large part to the federal investment in this waterway, several billion dollars have been invested by industry, agriculture, and other non-Federal agencies, providing thousands of jobs. For example, the Alabama State Docks, as a result of a \$300 + million expansion program, now offers the most advanced coal handling technology available in this country, along with similar improvements for handling grain, bulk materials, steel and forest products. It is interesting to note that the investment by this one local agency exceeds the total Federal investment in building all the locks and dams on the entire waterway, including the new Oliver Lock. We are asking for the continuation of federal infrastructure investments which have paid off many fold. The coal handling facility is being further expanded at this time, representing an additional \$14 million investment.

This Waterway must continue to be efficient and reliable if its users are to remain competitive. Shipments of ore, steel, and related products have increased because of the new and modern U. S. Steel facilities in Birmingham, and a new mill at Tuscaloosa which is already being expanded. The efficiency and modernization of the waterway have been important factors in U. S. Steel's continuing investments to modernize its Fairfield mill. Fairfield is now again one of the bright stars in the USX crown. Recent investments substantially exceed \$1 billion. The new mill at Tuscaloosa surpassed \$100 million in initial investment in 1985, and an additional \$154 Million expansion is now underway. This mill utilizes the river southbound for export, as well as northbound for raw materials and domestic sales of finished product. Hence there is a favorable impact on the balance of payments which will be further enhanced by the current expansion, which will reduce the need for imported steel slabs.

Major facilities for mining interests, forest products and marine equipment account for well over another \$1.5 billion in recent investment. A new underground coal mine alongside the Warrior River has begun operation, with a planned annual production rate of some 4 million tons. This will be among the largest underground mines in the United States. It is a world class facility, and its low sulfur coal will move through an adjoining barge loading facility. There are new facilities at the Port of Mobile, which now handle more forest products than the total handled by all other Gulf Coast ports. The efficiency and reliability of the waterway are key factors in the development and competitiveness of these facilities, upon which thousands of jobs depend.

We appreciate the Presidents' recommendation that O & M funds be provided for the Warrior-Tombigbee Waterway. Given the emphasis on reduced federal programs, the \$16.8 million recommended is a realistic even though a minimum figure, one which we believe will support the absolutely essential day to day activities of the O & M program, and with good management, allow for the continuation of several projects which are near the point of culmination, following several years of investigation, design and now beginning the actual work. These projects address long standing problems and have required extensive research and coordination, and reflect excellent team work by the Corps and industry. But for the support of this committee, these projects would not be nearing reality. I respectfully repeat that the performance of this waterway in successfully handling a level of tonnage some three (3) times the projections made during its design, attest to the success of our approach. We are committed to always doing our homework and putting a credible program before you, so that you may confidently continue to support this important transportation artery.

Our Testimony represents accomplishments made through diligent effort by people of capability and good intent, working together within the framework of the Congressionally led Civil Works Program over the past years. It works, it produces positive results.

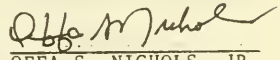
To summarize and close our testimony, we believe the Warrior-Tombigbee Waterway is a classic text book example of the positive aspects of the Civil Works Program. The Congress has seen its potential and has supported its development; the project continues to demonstrate its worth, having tripled the projected annual tonnage and benefits. Investments and expansion continue locally.

We are attaching written statements of support representing a cross-section of business, industry, and the public. Please note the wide range of interests represented by these statements:

financial institutions; public utilities; port facilities; coal mining, both deep and surface; manufacturers; suppliers; marine interests; and even department stores and bottlers.

Thank you. But for your wisdom, leadership and support none of these positive things would have been possible.

We stand ready to answer questions.


 OFFA S. NICHOLS, JR.
 President

SUMMARY OF THE REQUEST

Warrior-Tombigbee Waterway

Operations & Maintenance Funds \$ 16,820,000
 included in President's Budget Request

Total O&M Funds Required \$ 16,820,000

The Honorable Pete V. Domenici
 Chairman
 Subcommittee on Energy & Water Development
 United States Senate
 Washington, DC 20510

March 2, 1995

RE: FY96 Corps of Engineers Funding for Warrior-Tombigbee Waterway and Port of Mobile

Dear Mr Chairman.

Acting on behalf of Alabama Electric Cooperative, Inc. (AEC) and its member systems, I would like to request your continued support of the FY96 Corps of Engineers' funding for the Warrior-Tombigbee and the Port of Mobile.

Coal is transported to our Lowman Plant via barge, which is the most economical means to ship coal to the plant. Holding our fuel transportation cost down is one way of ensuring that our rates remain as low as possible, enabling us to provide our member systems with low cost electricity. I have enclosed a detailed statement which further explains AEC's position in this matter. I sincerely request that adequate funding be appropriated for the Warrior-Tombigbee Waterway and the Port of Mobile.

Please give your support to see that the Corps of Engineers' budget request is approved. Thank you for your continued support in this matter and other matters related to the rural electric program.

Sincerely,



James A. Vann, Jr.
 President and Chief
 Executive Officer

Alabama Electric Cooperative, Inc. (AEC), a wholesale electric power supplier for central and south Alabama and the Florida panhandle, who through its 21 member-owners provides electricity for over 282,000 consumers, supports the testimony of Col. Offa S. Nichols, Jr., president of the Warrior-Tombigbee Development Association, before this subcommittee.

Our primary generating plant is located on the Tombigbee River in southwest Alabama, and the Black Warrior-Tombigbee Waterway (BWT) and the Port of Mobile are vital components in our ability to transport coal to it economically and efficiently. Furthermore, our ability to provide electricity to our consumer base is closely linked to the availability of an efficient mode of transportation for coal used by our generating plants.

Any savings accrued in the generation, transmission and distribution of electric energy is significant to AEC and its member owners. Because we serve many sparsely populated areas, costs associated with electric energy is greater than in the more heavily populated urban areas. Fuel and transportation expenditures account for about 31 cents of every dollar we spend, so economical transportation costs available through utilization of the BWT for our plants is even more vital to AEC's economic and financial stability.

The Charles R. Lowman Plant, our largest and most efficient fossil-fired generating plant, is located at mile-point 89 on the Tombigbee River. The first unit of this plant has been in operation since 1969. Two other units were subsequently added in the late 1970s. The primary reason for location of the plant at this site is the relatively low-cost alternative transportation afforded by the waterway. AEC annually transports about one million tons of coal to the Lowman Plant via the BWT.

AEC also operates another generating facility, a compressed air energy storage (CAES) plant in McIntosh, Ala., which impacts the amount of coal required at the Lowman Plant. This makes the BWT even more critical to the success of AEC operations.

In addition to these existing facilities, AEC also has a site on the BWT as a possible location for a future baseload generating plant. This site was chosen because of its accessibility to efficient and reliable transportation via the BWT.

Any degradation of efficiencies of the BWT would force AEC to use a more expensive method of fuel transportation, now and in the future, and would result in an increase in the cost of service to our member owners who are already paying higher rates than their urban counterparts.

AEC obviously has a vested interest in the BWT and the Port of Mobile since they are so critical to the success of our company. But, there are other considerations that we feel are important beyond the scope of our own operations.

These transportation facilities help Alabama and the southeastern states reach world markets with regionally-produced goods. An efficient mode of transportation for moving bulk commodities is the major need in successfully functioning in today's global economy. With the BWT we have this capability.

The Port of Mobile is contributing to an overall effort to reduce trade deficits with foreign countries by providing exporters with a means of affecting the balance of trade.

To conclude, AEC has been serving central and south Alabama and the Florida panhandle for over half a century. The electricity generated in its plants and distributed by its member-owners to consumers, business and industry is a major factor in the future development of South Alabama and Northwest Florida.

AEC and its member-owners fully support the Corps of Engineers' 1996 budget request for \$16.8 million in operation and maintenance funds for the BWT. AEC also supports appropriation of adequate funds for operation and maintenance for Mobile Harbor.

However, we feel the \$16.8 million is an absolute minimum to keep the system reliable and efficient and one which we hope will not be adversely affected by budgetary reductions, now or in the future.

This level of funding should help assure the BWT and Port of Mobile can continue to function for the benefit of not only AEC but the entire region as well.

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D.C. 20515

February 24, 1995

Dear Senator Domenici:

The Warrior-Tombigbee Waterway is vital to the economic health of Alabama. The state's water transportation system must be efficient and well-maintained for the basic industries, such as mining and heavy metals, to provide a sound economic base for the state and for Alabama to enjoy economic growth.

Alabama Power Company's continued interest in the Warrior-Tombigbee Waterway is two-fold. First, our business is dependent on the general economic health of the state; and, second, we are a primary user of the waterway. For three decades, we have used economical water transportation to deliver coal to two of our major electric generating plants.

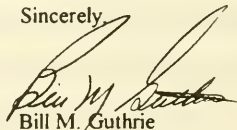
Four of Alabama Power Company's seven fossil-fueled, electric generating plants are located on the Warrior-Tombigbee Waterway system. Coal from the Warrior coal field is delivered to locations near the coal field and loaded into barges for shipment to two generating plants in the southern and central parts of Alabama. The 1,525-megawatt Plant Barry in Mobile County, which began operation in 1954, is supplied primarily by the Warrior-Tombigbee Waterway, as is the 500-megawatt Plant Greene County near Demopolis.

Adequate funds for operation and maintenance must be made available to the Corps of Engineers to continue efficient operation of the waterway and to avoid expensive and unnecessary interruptions to river traffic. Therefore, we support appropriation of \$16.8 million in O & M funds for the Black Warrior-Tombigbee plus adequate funds for Mobile Harbor during fiscal year 1996.

Alabama Power Company received 5.3 million tons of coal in 1994 which were transported on the Warrior-Tombigbee Waterway. This represented over 29 percent of the 17.6 million tons used in generating units operated by Alabama Power Company. Failure to properly maintain the waterway can have a significant adverse effect on the cost of providing electric service to Alabama Power Company's approximately 1.2 million customers.

Alabama Power Company supports the collective efforts of the Warrior-Tombigbee Development Association, of which it is a member, to obtain for the Corps of Engineers an adequate operations and maintenance budget which will insure the long-term efficient and economical viability of the waterway.

Sincerely,



Bill M. Guthrie

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D.C. 20510

March 14, 1995

My dear Senator Domenici:

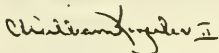
American Commercial Barge Line supports the Corps of Engineers' budget request of \$16.8 million for the Warrior-Tombigbee Waterway.

Since its inception, ACBL, America's largest inland river transportation company, has utilized the Warrior-Tombigbee Waterway to convey many bulk commodities that are critical to our nation's agricultural, chemical, steel production, and power-generating industries. We have also periodically used the Waterway as emergency conveyance during periods of restricted navigation on both the Ohio River and Mississippi River systems. This alternative has prevented temporary plant shutdowns and consequent loss of production and jobs.

While ACBL's current business activity precludes frequent use of the Port of Mobile, we have in the past availed ourselves to facilities at this important transportation link. The Port of Mobile's aggressive competitive posture, facility improvements, and location are important aspects that will continue to be a factor in our business consideration. Therefore, we support the funding request of \$17.7 million.

ACBL appreciates your committee's consideration in reviewing this funding request. Adequate maintenance of the Warrior-Tombigbee system is imperative to support our national transportation objectives and to develop additional competitive international markets.

Very truly yours,



C. William Kinzeler, II
Assistant Vice President/General Manager
Gulf Coast Operations

February 17, 1995

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D. C. 20510

Dear Chairman Domenici:

We employ approximately 2,000 people in a 3-state operation, with our headquarters in Birmingham. We fully recognize the extreme importance of the Corp of Engineers receiving proper appropriations to maintain the viability of the Tombigbee Waterway. There is no

question that this waterway and the Port of Mobile does much to keep transportation costs at an affordable level.

We feel that the proposed budget figure of \$16.8-million is realistic and is an expenditure that will do much to expand the industrial growth in our area, which is accelerating at this time.

A strong port in Mobile, plus the Tombigbee Waterway, is a great asset for the entire South East and Mid-West area and will even become more so in the years ahead. Please continue to give us your assistance and help.

Yours truly,


James C. Lee, Jr.

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D.C. 20510

February 17, 1995

Dear Chairman Myers.

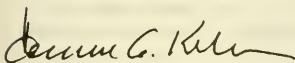
This letter is sent to you on behalf of Dixie Carriers, Inc. We are a major diversified water carrier that provides service to the public through the transportation of all types of bulk liquid and dry cargoes. Our area of operations is the inland waterway system of the United States and the Gulf of Mexico. We have operated on the Warrior-Tombigbee system for many years. Dixie is one of the largest users of the Tennessee-Tombigbee Waterway since its inception.

We join with President Offa Nichols of the Warrior-Tombigbee Development Association in urging your support of the U S Corps of Engineer's budget request of \$16.8 million. We feel the additional funds are necessary to keep the system reliable and efficient. We also support the Corp's budget request for appropriation of adequate additional O & M funds required for the Mobile Harbor.

I am aware that you face many difficult fiscal decisions. Please remember that in 1988 this country experienced one of the worst droughts in history. The Mississippi River reached its lowest level in recorded history. Barging came to a virtual standstill. During that critical time, Dixie Carriers was able to shift its tows that normally operate down the Mississippi River to the Warrior-Tombigbee system; thus preventing many of our customers from running out of products and closing down their plants. In the course of that one summer alone, it was calculated the economical savings paid for the entire Warrior-Tombigbee project. This country can ill afford for this waterway to deteriorate.

We appreciate your consideration of these budget requests that are of such vital importance to our company and industry

Very truly yours,



Dennis A. Kirkonis
Vice President & General Manager, Dixie Carriers - Linehaul

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, DC 20510

February 13, 1995

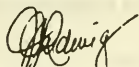
Dear Senator Domenici:

The Drummond Company, Inc., as the largest coal producer in Alabama, has a vital interest in the continued availability and use of the navigable waterways in Alabama. Our company's growth (and that of many others) and the economic viability of the Southeast has been positively impacted by the Warrior-Tombigbee System and the Port of Mobile. This must continue.

The company's new 4 million ton/year Shoal Creek Mine, now operational, has its principal shipping outlet at Mile Post 372 on the Black Warrior River. The success of this project (one of the newest and largest underground mines in the U.S.); our other existing mines and barge loading facilities now so heavily dependent on water transportation to be competitive; and the numerous associated jobs for Alabamians would be jeopardized absent the availability of an efficient and well maintained waterway system.

As you consider the funding needs of the Corps of Engineers, we strongly urge appropriation of at least \$16.8 million for FY96 for the day to day Operation and Maintenance of the Warrior-Tombigbee system and to continue the needed improvements in the approaches to the bridges and Jackson and Naheola. We also support adequate O&M funding for Mobile Harbor.

Sincerely,



James C. Ludwig

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D. C. 20510

February 15, 1995

Dear Senator Domenici:

The Port of Mobile and the inland waterways serving it are major factors in the economy of Alabama and the U.S. Gulf Coast. The Black Warrior-Tombigbee Waterway is a vital factor in this respect. It serves the manufacturing, mining and the agricultural areas and industrial production facilities in western Alabama. The waterway has served as an economic stimulant for one hundred years, having been periodically improved

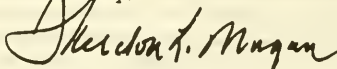
and today it is a modern system with the recent completion of the Oliver Lock and Dam.

Many basic materials move on the Black Warrior-Tombigbee system, and most of the coal that is exported from Mobile is shipped down this waterway. Therefore, it is important for adequate operations and maintenance that the amount needed as requested by the Corps of Engineers for Operations & Maintenance of \$16.8 million be appropriated for FY96. For FY95 the comparable figure was \$19 million. This level of funding is necessary to support the day-to-day O & M program, and to continue on-going channel improvement projects in the approaches to the bridges at Jackson and Naheola, both on the Tombigbee River.

We urge your support of an appropriation of \$16.8 million in O & M funds for the Black Warrior-Tombigbee for FY95. We also request support of the appropriation of adequate O & M funds for Mobile Harbor.

We feel this is a valid investment by the Federal Government, and will continue to be matched many times over by local investment.

Sincerely,



Sheldon L. Morgan

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy and Water Development
United States Senate
Washington, D.C. 20510

February 28, 1995

Dear Senator Domenici:

Gulf Power Company is an investor-owned electric utility and a subsidiary of The Southern Company; we serve 322,300 customers in Northwest Florida. Our Company utilizes coal for over 99 percent of its total generation requirements and consumes over 3,000,000 tons per year. Over 90 percent of our coal deliveries are dependent upon waterway transportation.

In the past, Gulf Power has moved millions of tons of coal on both the Tennessee-Tombigbee and the Black Warrior-Tombigbee Waterways or through the Port of Mobile. Recently, we have resumed importing a portion of our requirements through the Port of Mobile. This is expected to be an important option for us as we require lower sulfur coal in the future. Also, the flexibility of purchasing coal shipped on the Warrior-Tombigbee remains a major factor in our coal procurement program. Gulf Power depends on using these waterways, therefore, we totally support the need for adequate funding to properly maintain and improve operations.

In order to provide reliable electric service at the most economical cost to our customers, Gulf must continue to receive waterborne coal shipments. In addition to ensuring that adequate fuel supplies can be transported to our generating plants, the availability of waterway systems significantly contributes to future industrial growth in our service area.

We are in full support of the efforts of the Black Warrior-Tombigbee Development Association and ask that you give your full consideration to the testimony of the Association's President concerning the need for maintenance funding for the waterway system. We urge you to approve the Corps' operating and maintenance budget request for \$16.8 million to maintain the Black Warrior-Tombigbee Waterway for fiscal year 1996 and for adequate funding for maintaining the Mobile Harbor.

We feel that it is not only in Gulf Power's interest to support the maintenance and improvement of these waterways, but also in the best interest of the customers of our service area and the nation. The capability to transport coal and other commodities via the Black Warrior-Tombigbee Waterway and the Port of Mobile is vital to the economy of our region.

Sincerely,

Earl B. Parsons Jr.

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D.C. 20510

February 24, 1995

Dear Senator Domenici:

As a concerned user of the Warrior-Tombigbee Waterway, we would like to state our support for the Waterway and for the testimony to be given by the President of Warrior-Tombigbee Development Association, Offa S. Nichols, Jr. We would also like to state that we join in the Warrior-Tombigbee Development Association's collective effort to improve the efficiency and reliability of the Waterway.

Hunt Refining Company is a 38,000 barrel per day crude oil refinery located in Tuscaloosa, Alabama at mile marker 337 on the Black-Warrior River which employs approximately 265 employees from the State of Alabama. Our refinery produces such products as all grades of gasoline several types of asphalt, fuel oils and coke. We receive approximately 40,475 long tons of crude oil by barge each month. We also receive approximately 158 long tons of asphalt and 98 long tons of mineral spirits by barge each month. We, in turn, barge out approximately 23,936 long tons of crackerfeed and 5,855 long tons of asphalt each month. We also receive approximately 3,508 long tons of asphalt at our Decatur terminal located at mile marker 305 on the Tennessee River. We also receive approximately 1,892 long tons of asphalt at our terminal in Holt. We also receive approximately 5,748 barrels of Vacuum Tower Bottoms each month. The above tonnage represents millions of dollars of revenue.

Our crucial reason for needing the Waterway is that we make a product called "crackerfeed", named so because it is used in catalytic crackers. The only way we have of delivering this product is by the waterways. Fortunately, the refineries that we ship to are all over the intercoastal waterway.

Hunt Refining has encountered various limitations while using the Warrior-Tombigbee Waterway System. Among the limitations are draft limitations, lock delays and bridge delays. All of these limitations increase our transportation costs of crude and product.

If the Waterway experiences any further degrading, it would cause Hunt Refining Company to experience a substantial increase in transportation costs. In addition, it would have a negative impact on future employment.

We also receive crude oil from international freighters. This oil is first offloaded in Mobile into storage tanks at Alabama Bulk Terminal and Amerada Hess. A portion of the crude oil is then barged to our refinery.

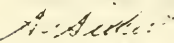
In regard to the Port of Mobile, we would like to emphasize the draft limitations there and hope we can continue to have funding to allow us to offload our international freighters and move them in and out of Mobile in an economical and safe manner.

We would like to indicate that we support full funding of the Corps' budget request for \$16.8 million in Operations and Maintenance funds for the Black Warrior-Tombigbee for FY96. This level of funding is necessary to support the day-to-day O & M program, and to continue on-going channel improvement projects in the approaches to the bridges at Jackson and Naheola, both on the Tombigbee River. We also support the appropriation of adequate Operations and Maintenance funds for Mobile Harbor.

Thank you, We are,

Very truly yours,

HUNT REFINING COMPANY


G. A. Gilbert
Manager of Transportation

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D. C. 20510

February 20, 1995

Dear Mr. Chairman:

International Paper has for over forty years relied on the southern waterway systems to access and transport raw materials from inland areas to our facilities along the Gulf Coast.

We have increased our presence into a number of small, rural communities providing direct and indirect employment opportunities, additional markets to landowners and vendors, and have made significant contributions to the local economies in rural Alabama, Mississippi and Tennessee.

The Warrior-Tombigbee project is a vital artery to our business, and International Paper supports the efforts of the associations and agencies dedicated to maintaining and enhancing this critical transportation corridor.

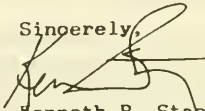
International Paper delivers or receives nearly 3/4 million tons of wood products annually via the waterway system. My company owns and operates boats and barges, and contracts with independent operators for services as needed. We invest nearly \$25 million annually in products and services connected with our marine operations.

The budget appropriation for Operation and Maintenance (O&M) on the Warrior-Tombigbee project is \$16.8 million for FY96. We support the appropriation of these O&M funds. In addition, we support the appropriation of adequate O&M funding for the Mobile, Alabama harbor.

The Mobile District Corps of Engineers has a remarkable record of working with the users and beneficiaries of our water transportation corridors. I applaud their commitment to improving the efficiency and reliability of the waterway.

Mr. Offa S. Nichols, Jr., as President of the Warrior-Tombigbee Development Association, will provide more detailed testimony before your committee in March. We believe that his report will provide information corroborating the request for adequate O&M appropriations, and we support his testimony.

Sincerely,



Kenneth R. Stacey
Manager-Three Rivers L&FS

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, DC 20510

March 3, 1995

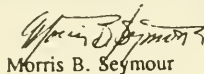
Dear Chairman Domenici:

Re: FY96 Funding for the Corps of Engineers for the
Warrior-Tombigbee Waterway and the Port of Mobile

James River Corporation is a major user of the Warrior-Tombigbee river system. We transport wood products to our mill located on the river in Choctaw County, Alabama. Barge transport is the most efficient and economical means of getting materials to our mill and is very important to our being competitive in today's market.

It is imperative that the Corps have adequate funding to properly maintain the river system and we add our support of the testimony of Colonel Offa Nichols on behalf of the \$16.8 MM request by the Corp for the Warrior-Tombigbee waterway.

Sincerely,



Morris B. Seymour

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy and Water Development
United States Senate
Washington, D.C. 20510

February 21, 1995

Dear Senator Domenici:

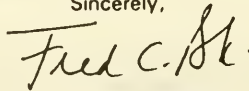
I am writing to express my support for the continued maintenance and improvement of the Black Warrior-Tombigbee Waterway System.

Midland Enterprises Inc. is one of the nation's largest barge lines and is a major user of the Warrior-Tombigbee System. Last year we transported in excess of 2,000,000 tons of commodities on this waterway, which is significant to the economy of the states in that vicinity, from the points of view of both producers and consumers. Barging is a very low cost method of transportation, which translates into savings for the consumer, such as lower rates for electricity.

Another important aspect of the Warrior-Tombigbee System is that it provides the only alternative to the Mississippi River to move product to the Gulf Coast. This was extremely important during the drought year of 1988, when the lower portion of the Ohio River was closed for an extended period and the lower Mississippi River was severely restricted for approximately five months. The availability of the Warrior-Tombigbee System allowed us to continue to serve utility and industrial customers and kept those customers from having to shut down operations because they could not receive raw material.

Midland Enterprises Inc. fully supports and recommends appropriation of \$16.8 million for operation and maintenance of the Black Warrior-Tombigbee System for FY96. All of these funds are necessary to assure that the Warrior-Tombigbee System remains an important part of the Inland Waterway System.

Sincerely,



Fred C. Raskin

The Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Energy
and Development
U.S. Senate
Washington, D.C. 20515

March 6, 1995

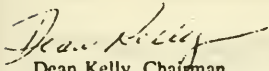
Dear Senator Domenici:

This statement is presented on behalf of the 2400 business members of the Mobile Area Chamber of Commerce in support of the FY 1996 operations and maintenance budget request for new funding for the Warrior-Tombigbee Development Association.

Our support for the request of the Warrior-Tombigbee Development Association is predicated on the fact that the cargo moving on the Warrior-Tombigbee Waterway supports the Port of Mobile and many area businesses. Only through our efficient transportation system and reliable

waterways can these benefits to local businesses continue to be realized. The \$16,800,000 request has been carefully reviewed and is a minimum figure to meet anticipated expenses and problems. We, therefore, request that you approve these requests.

Sincerely yours,



Dean Kelly, Chairman
Port & Waterways Task Force of the
Mobile Area Chamber of Commerce
(Atlantic Marine)

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, DC 20510

February 24, 1995

RE: The Warrior-Tombigbee

Dear Senator Domenici:

We request that you support the U. S. Army Corps of Engineers' Operations and Maintenance budget of \$16.8 million for the Warrior-Tombigbee Rivers.

Our vessels and our principal's vessels carry 2.8 million tons of iron ore and 1.6 million tons of furnace coke per year with the majority bound for industries in the State of Alabama. The Port's ability to maintain its present draft has enabled us to remain competitive on the world market. The continued dredging of the Warrior-Tombigbee allows this cargo to go through the waterway system of the Tombigbee. The U. S. Army Corps of Engineers has done an outstanding job maintaining this system.

A large portion of this cargo is for steel mills operating in the Birmingham, Alabama area. These import raw materials enable the steel mills to supply steel for various supplies to this nation. Some of these cargo products from the steel mills are re-exported through the Port of Mobile, which helps to reduce our trade imbalance. The efficiency and reliability of waterways commerce is essential for us to provide the raw materials necessary for our principals to meet the demands of the various markets within the State of Alabama and the United States.

We have been in operation since 1957 utilizing the Port of Mobile, the Warrior-Tombigbee and the Black River systems, and we realize the importance of tight budget control, yet the benefits on industry, commerce and trade as well as job return must be recognized. Therefore, we solicit your support and we join in the collective efforts of all those affiliated companies who realize the importance of maintaining this waterway system so that we may continue to bring in the necessary raw materials for our manufacturing industries within the State of Alabama. For these reasons, we request you to support the \$16.8 million for the Operations and Maintenance programs for FY/96.

Yours very truly



George E. Duffy
President

The Honorable Pete V. Domenici, Chairman
 Subcommittee on Energy & Water Development
 United States Senate
 Washington, D.C. 20510

March 10, 1995

Honorable Mr. Domenici:

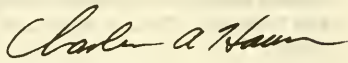
My name is Charles A. Haun and I am Executive Vice President for Parker Towing Company of Tuscaloosa, Alabama.

We are a full service marine transportation company operating a fleet of boats and barges and several ports on the southern portion of the U. S. Inland Waterways System. We are involved in the transportation of all types of commodities including coal, stone, wood products, steel, salt, manufactured products, chemicals, and oil. We have been in operation for over fifty years.

Parker Towing Company endorses and supports fully the efforts of the Warrior/Tombigbee Development Association to improve the overall operation of this vital waterway system. The Warrior/Tombigbee System and the Port of Mobile are of great importance to our company and the industries we serve. Proper and adequate funding of the waterway project will ensure that more industries can rely on this energy efficient delivery system. The regions's employment and economic well-being could be adversely affected to a great degree should the efficiency of the waterway be degraded.

As a member of the Warrior/Tombigbee Development Association, Parker Towing Company emphatically supports the Corps of Engineers' budget request of 16.8 million in operation and maintenance funds for the Warrior/Tombigbee System for fiscal year 1996. In addition, we support the Corps' request for operation and maintenance funds for Mobile Harbor.

Sincerely,



Charles A. Haun
 Executive Vice President

The Honorable Pete V. Domenici, Chairman
 Subcommittee on Energy & Water Development
 United States Senate
 Washington, D.C. 20510

March 2, 1995

Dear Senator Domenici:

Scott Paper began operations in Alabama with the purchase of the Mobile Mill from Hollingsworth and Whitney in 1953. Including the acquisition cost, Scott has invested over \$2 billion in the Mobile Plant and support operations. This investment represents an average annual capital investment of \$50 million.

A significant factor in the approval of capital invested in Mobile is the cost of manufacturing pulp, which is approximately 50% wood cost. As you may well know, Scott's River Transportation System is responsible for transporting approximately 80% of the wood requirement to Mobile and is a significant component of the existing and long term fiber procurement strategy.

For the past twelve years, Scott has continuously utilized the Warrior-Tombigbee Waterway, Coosa-Alabama River System, as well as the Port of Mobile. In 1983, the

first year Scott shifted from truck and rail to river transportation, some 1.06 million tons of forest products were transported with two tugboats and forty barges. Due to the efficiencies and reliability of the waterways, Scott will transport in excess of 3.4 million tons of forest products in 1995, 1.06 million of which is destined for export to international markets. To sustain marine operations at this level requires over 20 tugboats, 150 barges and over 200 jobs directly related to transportation.

For Scott to operate on the waterways requires operating expenses in excess of \$13 million. These operating expenses are required to support a \$28 million capital investment in wholly owned woodyards and joint venture wood processing facilities.

With this investment in the Mobile operations and the dependence on the waterways, it is paramount that the river channels, locks & dams, bridges and all other elements of navigation be adequately maintained, upgraded and funded to meet the existing and future demands of the waterways.

The proposed appropriation for FY 1996 Operations and Maintenance budget of \$16.8 million is the minimum required to fund the planned channel maintenance programs. Scott fully supports the appropriation of these funds. In addition, Scott requests that the subcommittee support adequate funding to support the operation and maintenance needs of the Mobile Harbor.

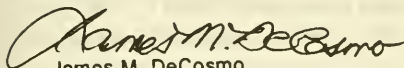
Scott in its entirety has been through significant changes in the last twelve months with many segments of the business being divested to allow for an increased emphasis on tissue products. As a result, Scott has transitioned into a multi-billion dollar packaged products company intensely focused on the tissue business in order to fulfill a commitment to strengthen shareholder value and continually grow and gain share in a highly competitive market.

The Mobile operations have been and will continue to be leaders in the Scott world. To help insure a leadership position, future stability, growth and development in all facets of manufacturing must continually improve. To remain a viable competitor in a highly competitive industry, it is imperative that the waterways continue to be adequately maintained and upgraded to meet the challenges tomorrow brings. The Warrior - Tombigbee and Coosa - Alabama River waterways are the "Main Artery" that supports the Mobile Mill and its employees. These waterways and ports will play a significant role in Scott's future business success.

With these considerations in mind, we ask that you give the requested budgets your full support.

Thank you for your help, time and consideration in this matter.

Sincerely,



James M. DeCosmo
Manager of Lands, Research and Procurement

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D. C. 20515

February 17, 1995

Dear Congressman Domenici:

On behalf of Alabama Power Company, Gulf Power Company, and Mississippi Power Company, I am writing to express our support for the Warrior-Tombigbee Development Association and its president in their efforts before your committee. Because of the importance of the Warrior-Tombigbee Waterway to local, national, and international trade, the Southern electric system joins with the Warrior-Tombigbee Development Association in an effort to improve the efficiency and reliability of the Warrior-Tombigbee Waterway.

For the past twenty-nine years, Alabama Power Company, Gulf Power Company, and Mississippi Power Company have used the Warrior-Tombigbee to transport coal to their respective electrical generating plants at Demopolis, Alabama; Mobile, Alabama; Pensacola, Florida; Sneads, Florida and Biloxi, Mississippi. In 1994, through the use of contracted barge carriers, these companies moved over 4.7 million tons of coal by way of the Warrior-Tombigbee Waterway. All of this coal would have required a longer move down the Mississippi River through New Orleans. The Warrior-Tombigbee Waterway allows the barges to move down the Warrior-Tombigbee River to Mobile and other destinations. The significant importance of this capability to our system is obvious from a transportation flexibility standpoint. Additionally, the Port of Mobile is the hub of the Central Gulf Coast and the continued development of its facilities and support services is critical to the economy of the tri-state area served by the Southern electric system.

Alabama Power Company, Gulf Power Company, and Mississippi Power Company utilize water transportation because of the economic advantage to our millions of customers. Any expenditures for maintenance or upgrading which improve the efficiency and reliability of the waterway will have a positive impact on our customers. At the same time, higher cost resulting from inefficiency or the unreliability of the Warrior-Tombigbee Waterway will have a direct and adverse effect upon our customers.

It is imperative that there be a continuous program for maintenance and upgrading of the Warrior-Tombigbee Waterway channels and locks. We support the proposed budget request for \$16.8 million in Operations and Maintenance funds for the Black Warrior-Tombigbee River for the fiscal year 1996. We also support the request for O&M amounts for Mobile Harbor.

Adequate funding of programs required to maintain the efficiency and reliability of our nation's waterways is critical to its superior economic health and welfare. I strongly urge and solicit your support.

Sincerely,



Hon. Pete V. Domenici, Chairman
 Subcommittee on Energy and Water Development
 United States Senate
 Washington, D.C. 20510

March 1, 1995

Dear Senator Domenici:

As a member and director of the Warrior-Tombigbee Development Association, as well as a regular user of the Warrior-Tombigbee Waterway, we wholeheartedly support the testimony of the President of the Warrior-Tombigbee Development Association, Offa S. Nichols, Jr.


We primarily move petroleum products on the waterway and also operate two petroleum terminals in the Mobile area. Without the continued operations and maintenance programs performed by the U. S. Corps of Engineers, it would not be possible for the barge industry to continue to provide this country with the most economical and energy efficient mode of transportation available today.

We wholeheartedly support the amount of \$16.8 million for operations and maintenance and believe it will cover the known and reasonably expected needs for FY96. Without these funds the system would not be reliable or efficient.

The importance of the Mobile Harbor Operation and Maintenance budget cannot be overemphasized. The Harbor serves the State, the Gulf Coast and shipping to and from not only all ports of the United States but throughout the world. We, therefore, support adequate appropriation of operation and maintenance funds for the Mobile harbor to keep it operable.

We appreciate the opportunity to express our views on the Warrior-Tombigbee Waterway System and the Port of Mobile, and want to thank you for your cooperation in the past and continued interest in the future of all waterways of our nation.

Very truly yours,



R. A. Guthans
 President

Honorable Pete V. Domenici, Chairman
 Subcommittee on Energy and Water Development
 U.S. Senate
 Washington, D.C. 20510

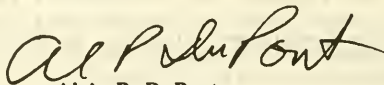
March 15, 1995

Dear Senator Domenici:

I am asking that you support the U.S. Army Corps of Engineer's request for \$16.8 million for the FY '96 operation and maintenance of the Warrior-Tombigbee Waterway and Mobile Harbor. I understand that this is the amount in the present budget, and thus is at minimum level. Please do not reduce this amount.

I am certain that the availability of water transportation is crucial to our area's manufacturing development. It is therefore critical that the river system remain navigable and that projects to upgrade the system be funded and completed.

Sincerely,



Alvin P. DuPont
Mayor

February 27, 1995

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy and Water Development
United States Senate
Washington, DC 20510

Dear Senator Domenici:

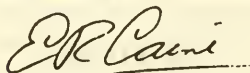
U.S.X. Corporation operations (both steel and mining) rely heavily upon the availability of Alabama's river systems to transport iron ore, coal, coke and finished steel products. The availability of a commercially viable river transport system permits U.S.X. to be competitive both domestically and internationally.

Our plans call for moving up to 6 million tons per year of material over the Warrior-Tombigbee Waterway System during the coming years.

It is for this reason that we offer our support for the Corp of Engineers in their request for operation and maintenance funds for fiscal year 1996. We feel the Warrior-Tombigbee Waterway System is vital to the continued growth of Alabama.

We support the action of the Warrior-Tombigbee Development Association in their efforts to assist the Corp of Engineers.

Very truly yours,



E. R. Caine
General Manager

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United State Senate
Washington, D. C. 20510

March 9, 1995

Dear Congressman Domenici:

We are pleased to write you again this year in support of the Warrior-Tombigbee Waterway and the Port of Mobile. In our letter last year, we mentioned that our company engaged in over \$11,000,000.00 of marine business in Alabama in 1993. During 1994, this business grew to over \$13,000,000.00. This is extremely important business for us and, as we

have stated previously, the long term reliability and health of the Warrior-Tombigbee Waterway project is critical to our business.

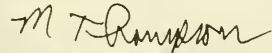
Almost all of our business goes through the Port of Mobile. We project growth in our marine business through the Waterway System and Port to exceed \$14,000,000.00 in 1995 and to exceed \$15,000,000.00 by 1996. This growth has supported the addition of new jobs tied directly to this business. You can see that the Port of Mobile and the Waterway System are critical to us, as well as to Mobile and the surrounding communities.

We are in support of the \$16.8 million in O & M funds for the Black Warrior-Tombigbee for FY96. We feel that these funds are essential to maintain these waterways. In addition, we are in support of the appropriation of adequate O & M funding for Mobile Harbor.

Thank you for your assistance and consideration of these matters.

Sincerely,

THOMPSON TRACTOR CO., INC.



Michael D. Thompson,
President

February 21, 1995

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
U.S. Senate
Washington, D.C. 20510

Dear Senator Domenici:

David Volkert & Associates, Inc. (Volkert) is an engineering/architectural/planning firm which employs 350 people and maintains Alabama offices in Mobile, Birmingham, and Gulf Shores. DV&A strongly supports funding for the Corps of Engineers for the Warrior-Tombigbee Waterway and the Port of Mobile for FY96.

We believe the proposed \$16.8 million for Operations and Maintenance funds for the Black Warrior-Tombigbee is justified since this amount is necessary to cover the known and reasonably expected needs for FY96, support the day-to-day O&M program, and continue on-going channel improvement projects such as the approaches to the bridges at Jackson and Naheola, both on the Tombigbee River.

Since the City of Mobile's largest industry is her Port and the City's economy depends upon her Port, Volkert also supports funding for O&M for Mobile Harbor.

Confidence in the Waterway and its efficiency and modernization are important in bringing much needed new industry to Mobile and to the State of Alabama. Lower operating costs to users of the Waterway and Port of Mobile are essential in obtaining a reasonable balance of the international export market allowing the U.S. to reduce our trade deficit. Increases in shipping and commerce result in opportunities for many companies, similar to Volkert, to obtain business and offer meaningful employment to citizens of the State of Alabama and other parts of the U.S.

Volkert appreciates this opportunity to express our support of Colonel Nichols, President of the Black Warrior-Tombigbee Development Association, and the testimony to be given by him before the

Appropriations Committee of the Senate and House. We are proud to join in the collective effort to improve the efficiency and reliability of the Black Warrior-Tombigbee Waterway and the Port of Mobile.

Sincerely,



T. Keith King, P.E.
President and CEO

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy and Water Development
United States Senate
Washington, D.C. 20510

February 23, 1995

Dear Mr. Domenici:

I would like to thank you for the opportunity to make a statement to your Subcommittee. Please accept this letter as my statement.


The Mining Division of Jim Walter Resources, Inc. currently mines 8 million clean tons of coal per year. Of that amount, nearly 65% of our production is exported. Approximately half of our export production travels down the Warrior River and all of our export production goes through the Port of Mobile. Our payroll for 2,417 employees last year was in excess of \$100,000,000 and taxes withheld and/or paid were in excess of \$27,000,000. It is obvious from these facts and figures that this Company relies heavily on our waterways and port facilities and that they are of the utmost importance to this Company, its employees and the economy of the State of Alabama.

I strongly support the Corps of Engineers budget request for \$16.8 Million in Operations and Maintenance funds for the Black Warrior-Tombigbee for FY 96. I also support the appropriation of adequate Operations and Maintenance funds for Mobile Harbor. Our waterways and port facilities provide economic prosperity to Alabama that is worthy of your support. Further, I support the statements and testimony to be given by Col. Offa S. Nichols, Jr., President of the Warrior-Tombigbee Development Association. I believe that the value of improved efficiency and reliability of the Warrior-Tombigbee Waterway and Port of Mobile cannot and must not be underestimated.

The world coal business is at its most competitive level in history. News of any problems, especially transportation and delivery problems, is quickly spread by other coal producers around the world to the buyers to discourage purchases here. A blemish on our delivery record can have devastating, long-term effects from which we might never fully recover. Buyers lost today may never return tomorrow.

Again, thank you for this opportunity to give my comments on this very important matter.

Yours very truly,



The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington DC 20515

February 23, 1995

Dear Mr. Chairman:

I am Adolph N. Ojard, President of Warrior & Gulf Navigation Company. Our company is an active member of the Warrior-Tombigbee Development Association and wholly supports the testimony to be presented by Mr. Offa Nichols as President of the Association. I wish to take this opportunity to highlight the impact that the Warrior-Tombigbee Waterway and the Port of Mobile has to the success and development of our Company.

Warrior & Gulf is a barge line and terminal operator headquartered in Chickasaw, Alabama, and owns 22 towboats and 240 barges, moving approximately 9 million tons of bulk materials on the Black Warrior-Tombigbee River System, making WGN the dominant water carrier operating in the region. Additionally, we own and operate two (2) bulk and general cargo terminals at Port Birmingham and Mobile, Alabama, providing storage, transloading and intermodal services for truck, rail and water transportation. Our total employment is 235 people.

Warrior & Gulf has provided barge transportation on the Black Warrior-Tombigbee River Systems since 1940 for export and domestic coal, iron ore, coke, import and export steel products, export and domestic wood chips, and several other types of bulk commodities. An efficient and properly maintained waterway system integrated with the Port of Mobile is vital to Warrior & Gulf and its customers. This waterway system has made the entire region world competitors through the reliable, efficient movement of raw materials and finished products both for domestic and overseas consumption. In order to encourage continued economic development along this great waterway we must continue in our efforts to ensure this viable low cost transportation alternative remains in place. The continued efficiency of this waterway is extremely critical to the viability of the industries it services and develops. This waterway system and harbor hold great opportunity for developing trade initiatives with Mexico and South America.

Historically, our shoaling problems vary greatly from year to year dependent upon the length of our high water season (December - April) and the amount of flooding that occurs. The Operations & Maintenance budget has been typically \$18 - 20 million including monies to maintain on-going channel improvements which are important to the continued safety and efficiency of the waterway system.

We have worked closely with the Corps of Engineers and whole heartedly endorse their budget request of \$16.8 million in O & M funds for the Black Warrior-Tombigbee system for FY '96. Additionally, our company supports the appropriation of adequate O & M funds for Mobile Harbor.

We respectfully request your continued support and assistance as your subcommittee considers appropriation of funds for these very important issues concerning the Black Warrior-Tombigbee System, Mobile Harbor and those they serve.

Very truly yours,

ADOLPH N. OJARD
President

PREPARED STATEMENT OF M.V. WILLIAMS, LOWER MISSISSIPPI VALLEY
FLOOD CONTROL ASSOCIATION

Mr. Chairman and distinguished Members of the Committee, my name is M.V. Williams and my home is in Friendship, Tennessee. I am the President of the West Tennessee Tributaries Association and I also serve as the Chairman of the Executive Committee of the Lower Mississippi Valley Flood Control Association and I appear here as spokesman for that Association to present their views on the Fiscal Year 1996 Budget for the Mississippi River and Tributaries Project. I will present several items of general interest to all our membership and then call on our other spokesman, Mr. Curtis Patterson from Louisiana to testify concerning specific items. Mr. Chairman, I assure you we will be as brief as possible. I have submitted a more detailed statement that I request be made a part of the record.

I hope that most of you are familiar with our Association. I described the Organization and objectives in my written statement so in the interest of time I will not repeat that but I will be very happy so answer any questions that anyone may have concerning the Association. Let me just briefly state that the Lower Mississippi Valley Flood Control Association represents practically all of the levee and drainage districts, municipalities, port and harbor commissions and other state agencies in the Lower Mississippi Valley, extending from the vicinity of Hannibal, Missouri to the Gulf of Mexico. These Organizations and Agencies are political subdivisions of the various States in which they are organized and function: The States of Illinois, Missouri, Kentucky, Tennessee, Mississippi, Arkansas and Louisiana. We have appeared before this Committee for well over sixty years in order to provide the Congress with data to justify adequate Appropriations to complete the Mississippi River and Tributaries project as quickly as possible. Briefly stated we are the Agency that provides the means for all the people of our great Valley to speak and act jointly on all flood control, bank stabilization, navigation and major drainage problems.

The Lower Mississippi Valley Flood Control Association was first organized in 1922. Our 130 member organizations include levee boards, drainage districts, port authorities, harbor commissions, state agencies, municipalities and also just individuals that share our problems and concerns. Those problems address themselves to flood control, navigation, channel improvements and major drainage in the seven states of the alluvial valley of the Lower Mississippi River and I think more importantly our concerns are for the welfare and prosperity of this great nation of ours.

Our Association is comprised of a very large group of individuals who are businessmen, property owners, conservationists, farmers, attorneys, doctors, wildlife enthusiasts, engineers, accountants, environmentalists, civil servants and elected officials from all political parties.

Our Objectives simply stated are:

To seek Congressional authorization for, and adequate annual appropriations for the early completion of all flood control projects necessary for the protection of the Lower Mississippi Valley against the maximum probable flood.

To secure prompt initiation of, and early completion of existing project for the stabilization of the banks of the Lower Mississippi River, in order to assure the integrity of the Main River Levee System; to provide increased flood discharge capacity, permanency of location for harbor facilities and industrial sites, and to obtain deeper and more reliable navigation channels.

To support channel and major drainage improvements throughout the Lower Mississippi Valley to provide protection against headwater flooding, and to provide adequate outlets for local and state drainage projects.

To cooperate in every proper way with the Department of the Army, the Chief of Engineers of the United States Army, the Mississippi River Commission and other agencies to hasten the accomplishment of flood control in the Mississippi Valley.

We come before you again this year in support of the Mississippi River and Tributaries Project which was established by the Flood Control Act of 1928.

As we've done in the past the Executive Committee of the Lower Mississippi Valley Flood Control Association has closely examined the Fiscal Year 1996 Budget as submitted for the Mississippi River and Tributaries Project.

Our Executive Committee is composed of business and professional men representing each of the seven states with the Valley. They are men of wide experience in business, professional and civic life. They are mature in their judgement and responsible in their actions. It, therefore, has been no easy task for that Committee to arrive at an asking figure based on urgent needs and yet tempered in the light of the grave fiscal problems which face the Federal Government. I say these things to emphasize that our asking was not arrived at by whim and fancy.

Mr. Chairman we can find no serious problems with the dollars shown in the Mississippi River and Tributaries Budget especially in light of the fact that the Army Corps of Engineers have by their own admission done such a poor job of expending the funds appropriated to them over the past two years. Many reasons can be given for this lack of fiscal ineptitude but we as the local sponsor and partner of the Corps of Engineers feel that at least part of the blame lies with the Corps recent movement away from the things they do best and have done so well for so long and that's flood control and navigation and more recently environmental enhancement. They now unfortunately appear to be directing their energies and resources to things best left to others, such things as recreation, floodplain management and regulation of private property rights. We also believe that part of the blame still lies with the inability of the local people to pay for the new and additional cost-sharing that has been imposed on much needed, justified, authorized and funded flood control projects. We still do not have the proper solution to the ability-to-pay provision that Congress continues to request, therefore numerous projects are not being implemented as directed by the Congress simply because the local interests do not have the money.

Mr. Chairman we are not here today to assess blame nor to recount old grievances but to discuss with this Committee the President's Fiscal Year 1996 Civil Works Budget request for the U.S. Army Corps of Engineers and more specifically that portion of the budget for the Mississippi River and Tributaries project that amounts to \$319,250,000. As I mentioned earlier we find no serious problems with that figure which compares favorable with the \$320,000,000 in last year's budget. What we do have tremendous problems with is the proposed policy changes contained in the Fiscal Year 1996 Budget.

We are more than a little upset with the statement contained in the Budget that the President has a plan to reinvent the Army Corps of Engineers. This Association hereby unanimously places itself on record as being unalterably opposed to any such proposal. We believe that the efficiency of the Corps of Engineers in prosecuting navigation, flood control, and other civil works is unexcelled in the Government service and that a thoroughly decentralized organization for accomplishing these functions under the Corps with adequate cooperation, with the people, State Governments, and other interested Federal Agencies is above reproach. We believe that it would constitute a serious injury to the people of this Great Nation to have these vital public services altered, reinvented and significantly changed in any way. We urge the Congress, collectively and individually, to prevent any such ridiculous action from occurring.

The Corps of Engineers is now in it's 221st year, and for almost a century and 3/quarters it has been responsible for the improvements of the Nation's rivers and harbors. They have played a large part in making the United States the greatest industrial and commercial nation on the globe-with it's resources, it's wealth and productive capability that has saved the World in War and sustained it through many years of troubled peace. Why would anyone wish to reinvent or in essence abolish any agency or organization with such a proud history and heritage?

We express the hope that Congress will re-assert its dominance in the field of water resource development. From its inception until recent years, the flood control and navigation programs had been carried out under policies legislated by the Congress. We have seen an increased effort on the part of the Executive Departments so supplant this historic Congressional role and assume these policy making functions. Our program has always been non-partisan and non-political, as it should continue to be. The alternative for its direction will be civil servants desk-bound in Washington, ignorant of our needs and unaccountable to our people.

This great Nation with its highly developed agriculture and its industrial strength bears eloquent testimony of what can be wrought by the concerted efforts of wise local leadership, vigorous Congressional representation and the Engineering skills of a dedicated body of men such as the Army Corps of Engineers

In response to Congressional initiatives, the Corps of Engineers has literally changed the face of the nation over the past several years. Without the flood control and navigation improvements throughout this nation, our standard of living and quality of life would not and could not be what it is today. Both the economy and the environment have been benefited tremendously by Corps projects.

Speaking of the environment always brings to our mind the taking of private property rights in the name of protecting so-called wetlands. I will not take this Committee's time with that and other Federal regulatory programs except to say that while we all fully recognize the value of environmental resources, I believe almost every citizen of this country will tell you that the regulatory policies and practices (of the Corps, as with many agencies), are in need of revision.

In closing let me please say that it is basic and fundamental in considering appropriations for civil works, that the Congress take into account the facts that flood control improvements, while apparently costly at the outset, have been justified after a most thorough engineering and financial study; are a Federal interest without regard to state or local boundaries; are essential to the health and welfare of our nation; and they pay for themselves many times over in prevention of loss of life and property damage. For every \$1.00 invested \$10.00 of flood damage have been prevented.

Under our constitutional form of government the citizens as the final authority and for whose protection and welfare our Government exists, are entitled to the best protection from floods our nation is capable of devising. We would respectfully request that this Committee consider that during it's deliberations of the Corps of Engineer's Fiscal Year 1996 appropriations.

Mr. Chairman, I wish to express for this entire Association our sincere appreciation for the many courtesies and the time this sub-committee has given us today and all the past years.

With your permission I would like to present our other Witness, Mr. Curtis patterson from Louisiana.

PREPARED STATEMENT OF LARRY D. DOWDY, THE LITTLE RIVER DRAINAGE DISTRICT, CAPE GIRARDEAU, MO

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE;

MY NAME IS LARRY D. DOWDY. I LIVE IN CAPE GIRARDEAU, MISSOURI AND SERVE AS EXECUTIVE VICE-PRESIDENT FOR THE LITTLE RIVER DRAINAGE DISTRICT WHICH SERVES MORE THAN 2.0 MILLION ACRES OF LAND AND MORE THAN 2000 INDIVIDUAL LANDOWNERS IN SOUTHEAST MISSOURI. OUR DISTRICT PROVIDES OUTLET DRAINAGE AND FLOOD PROTECTION THROUGHOUT SOUTHEAST MISSOURI AND NORTHEAST ARKANSAS. MY TESTIMONY WILL RELATE SPECIFICALLY TO THE F. Y. 1996 APPROPRIATION FOR THE ST. FRANCIS BASIN PROJECT WHICH IS A PART OF THE MISSISSIPPI RIVER AND TRIBUTARIES PROJECT.

MY STATEMENT IS ON BEHALF OF OUR DISTRICT AS WELL AS OTHER LEVEE AND DRAINAGE DISTRICTS WITHIN THE ST. FRANCIS BASIN PROJECT, BEING BOTH IN SOUTHEAST MISSOURI AND NORTHEAST ARKANSAS. TO MY KNOWLEDGE, ALL OF THE DRAINAGE AND LEVEE DISTRICTS THAT WE ARE REPRESENTING TODAY ARE LOCALLY TAX FUNDED AND OPERATED AND ARE DEPENDENT UPON EACH OTHER FOR THEIR OUTLET OF WATERS THROUGH THE ST. FRANCIS RIVER AND ULTIMATELY DISCHARGING THAT WATER IN THE MISSISSIPPI RIVER NEAR HELENA, ARKANSAS.

FURTHER, AND VERY IMPORTANT TO OUR DISTRICT, IS THE MAINTENANCE MONIES THAT ARE WITHIN THE BUDGET FOR PROJECTS THAT THE FEDERAL GOVERNMENT HAS CONSTRUCTED AND UPON WHICH THE RESPONSIBILITY OF MAINTENANCE IS THAT OF THE FEDERAL GOVERNMENT. THE AMOUNTS IN THE BUDGET ARE WITHIN THE CAPABILITIES OF THE CORPS OF ENGINEERS AND WILL BE WISE INVESTMENTS WHEN SPENT IN SOUTHEAST MISSOURI AND NORTHEAST ARKANSAS.

THE PRESIDENT'S BUDGET FOR THE MISSISSIPPI RIVER AND TRIBUTARIES PROJECT IS FOR \$332,050,000 WHICH IS AN AMOUNT THAT WE SUPPORT. THIS AMOUNT SHOULD KEEP THIS PROJECT MOVING BUT CERTAINLY NOT AT THE PACE IT SHOULD. THIS IS A MOST VITAL PROJECT TO OUR NATION AND HAS PREVENTED BILLIONS OF DOLLARS OF DAMAGES SINCE ITS INCEPTION THOUGH IT IS NOT COMPLETED. IT HAS A FAVORABLE BENEFIT-COST RATIO.

WE POINT OUT TO YOU THAT THE MISSISSIPPI RIVER AND TRIBUTARIES PROJECT WAS A CONGRESSIONAL PROJECT THAT WAS ESTABLISHED BY LAW TO SOLVE A NATIONAL PROBLEM AS THE MISSISSIPPI RIVER CARRIES OVER FORTY PERCENT (40%) OF THE WATER THAT FLOWS THROUGH OUR NATION AND SOME PARTS OF CANADA. WE WISH THAT THIS OBJECTIVE THAT WAS INITIATED SOME TIME AGO BY MEMBERS OF CONGRESS, COULD CONTINUE TO BE AS IT WAS INTENDED AND NOT AS WE SEEM TO BE DRIFTING FURTHER AND FURTHER FROM THE PROJECT BEING A NATIONAL PROBLEM, BUT ONE THAT IS OF BENEFIT ONLY TO THOSE WHO CAN AFFORD IT. THOSE WHO CAN'T PAY THEIR COST SHARING AMOUNT CONTINUE TO SUFFER SEVERELY. UNLESS SOME RELIEF OR ALTERNATIVES ARE MADE IN THE COST-SHARING ASPECTS OF SUCH PROJECTS AS THE MISSISSIPPI RIVER AND TRIBUTARIES PROJECT, THEN PROJECTS SUCH AS THIS WILL GO UNCONSTRUCTED AND OUR NATION WILL NOT REALIZE THE GREAT BENEFITS TO BE DERIVED. WE NEED YOU TO HEAR AND INCORPORATE OUR DESIRES. AS A MATTER OF INFORMATION FOR YOU, PRESIDENT CLINTON, WHO WAS THEN GOVERNOR OF THE STATE OF ARKANSAS, RECOMMENDED IN THE FINAL REPORT OF THE LOWER MISSISSIPPI DELTA ECONOMIC COUNCIL, ON WHICH HE SERVED AS CHAIRMAN, THAT THERE SHOULD BE A TEN YEAR MORATORIUM ON COST-SHARING AND ON FLOOD CONTROL PROJECTS THROUGHOUT THE ENTIRE MISSISSIPPI VALLEY. WE WOULD HOPE THAT YOU WILL GIVE SOME CONSIDERATION TO THAT STATEMENT AND STRIVE TO MAKE THAT BECOME A REALITY. CURRENT POLICIES ARE CAUSING THE LOCAL RESIDENTS TO SUFFER EACH YEAR AND OUR NATION LOSES VALUABLE LONG LASTING ASSETS.

INCLUDED IN THE PRESIDENT'S BUDGET IS \$10,000,000 FOR CONSTRUCTION WITHIN THE ST. FRANCIS BASIN PROJECT IN MISSOURI AND ARKANSAS. THESE AMOUNTS ARE EQUAL TO THE CORPS CAPABILITIES AND WE ASK YOUR SUPPORT OF ALL OF THE ITEMS COVERED IN THIS \$10,000,000. ALSO INCLUDED IN THE MISSISSIPPI RIVER AND TRIBUTARIES PROJECT IS \$134,188,000 FOR MAINTENANCE. OF THIS AMOUNT SOME OF THESE DOLLARS MUST BE SPENT IN THE ST. FRANCIS BASIN PORTION FOR PROJECTS THAT REQUIRE FEDERAL MAINTENANCE. THESE AMOUNTS SHOULD BE ADEQUATE TO MEET THE NEEDS OF THE LOCAL INTEREST AND ARE WITHIN THE CORPS CAPABILITIES.

AS YOU ARE AWARE IN 1993 WE EXPERIENCED A RECORD CREST ON THE MISSISSIPPI RIVER AT CAPE GIRARDEAU, MISSOURI EXCEEDING ALL PAST RECORDS BY TWO (2) FEET. OUR LEVEE SYSTEM HELD AND WAS NEVER IN DANGER OF FAILING. I HAVE NO ESTIMATE AS TO THE AMOUNTS OF DAMAGES THAT WERE PREVENTED FROM THE LEVEE SYSTEM WE HAVE AND MAINTAIN. THE RIVER WAS AT FLOOD STAGE FOR OVER 255 DAYS DURING 1993 ON THE CAPE GIRARDEAU GAGE WITH 200 OF THOSE BEING CONSECUTIVE. THE INVESTMENT OF FEDERAL MONIES INTO THE LEVEE SYSTEM THAT WE MAINTAIN CERTAINLY REALIZED BENEFITS ONE HUNDRED FOLD THIS PAST YEAR. THIS JUST POINTS OUT TO US THE NEED FOR SUPPORT OF CONGRESS FOR THE DEVELOPMENT OF SUCH PROJECTS NOW AND THROUGHOUT THE ENTIRE MISSISSIPPI RIVER BASIN. THE FLOOD WATERS THAT WE RECEIVED WERE NOT LOCAL BUT WERE FROM THE UPPER STEM AND OTHER TRIBUTARIES INTO THE MISSISSIPPI RIVER FROM MANY MANY MILES AWAY. THIS PROJECT WAS INITIATED AND DEEMED TO BE A NATIONAL PROBLEM AND IT CONTINUES TO BE A NATIONAL PROBLEM AND WILL BE SO FOREVER. CONGRESS AT THE INITIATION OF THIS PROJECT RECOGNIZED IT TO BE A NATIONAL PROBLEM AND THE FAILURES WE SAW AND THE SUCCESSES WE WITNESSED IN 1993 POINT OUT THE CONTINUED NEED FOR THIS PROJECT TO BE COMPLETED AND TO BE COMPLETED AS SOON AS POSSIBLE WITH FEDERAL MONIES.

TWO ITEMS THAT CONTINUE TO CAUSE US PROBLEMS ARE LONG STANDING AND ARE STILL WITH US TODAY. ONE I HAVE ALREADY MENTIONED BRIEFLY BUT PLEASE HEAR ME FURTHER. WE ACCEPT THIS CONCEPT OF COST-SHARING BUT WE STILL DISAGREE WITH THE CRITERIA BEING USED BY THE EXECUTIVE BRANCH IN DETERMINING THE ABILITY TO PAY BY LOCAL INTEREST. WE BELIEVE THE CURRENT CRITERIA IGNORES THE INTENT OF CONGRESS AND WE WOULD HOPE THAT THIS CAN BE CHANGED.

WE ALSO WISH TO RESTATE OUR STRONG DESIRES FOR LEGISLATION TO BE PASSED TO EQUITABLY PROVIDE REGULATIONS FOR PRIVATE LANDOWNERS UPON WHOSE PROPERTY NATURAL WETLANDS EXIST. WE BELIEVE THE PRESENT ACT VIOLATES THE CONSTITUTIONAL RIGHTS OF PRIVATE LANDOWNERS. IT TAKES AWAY THE USES OF PRIVATE LANDS FROM THE OWNERS WITHOUT JUST COMPENSATION AND WITHOUT HIM BEING A WILLING PARTICIPANT. THIS NEEDS TO BE CHANGED. IF THE ADVOCATES OF THIS REPORT FEEL AS STRONGLY ABOUT THEIR MOVEMENT AS THEY SEEMINGLY DO THEN THEY SHOULD BE WILLING TO PURCHASE FROM WILLING SELLERS THOSE LANDS AT A FAIR MARKET VALUE, IF NOT, THEN LET THE PRIVATE LANDOWNERS CONTINUE TO USE, DEVELOP AND UTILIZE HIS RESOURCES FOR HIS PRIVATE PROPERTY TO HIS BENEFIT AND GENERAL WELFARE UNLESS THAT USE POSES A THREAT TO THE LIFE OF OTHERS. ADDITIONALLY WE WANT TO EXPRESS OUR CONCERNS OF POLICY CHANGES IN THE WHITE HOUSE FISCAL YEAR 1996 BUDGET FOR THE CIVIL WORKS PROGRAM OF THE ARMY CORPS OF ENGINEERS. THIS BUDGET CONTAINS POLICY CHANGES THAT, IF IMPLEMENTED, WILL EFFECTIVELY ELIMINATE THE FEDERAL FLOOD CONTROL PROGRAM. OUR DISTRICT, THE LOWER MISSISSIPPI VALLEY, AND OTHER AREAS ARE DRASTICALLY AFFECTED BY THE FLOOD CONTROL POLICY OF THIS COUNTRY. MANY TIMES WE EXPERIENCE FLOODS FROM WATERS THAT ORIGINATE SEVERAL STATES AWAY. WE HAVE ALWAYS MAINTAINED THE FIRM CONVICTION THAT FLOOD CONTROL IS A NATIONAL PROBLEM, AND THEREFORE, A FEDERAL RESPONSIBILITY THAT SHOULD CONTINUE TO BE CARRIED OUT UNDER POLICIES LEGISLATED BY THE CONGRESS. THE DUTY OF THE FEDERAL GOVERNMENT IS TO HELP SOLVE PROBLEMS THAT ARE MULTI-STATE AND PARTICULARLY PROBLEMS SUCH AS FLOODING THAT ARISE OUT OF YOUR STATE OR OUT OF YOUR AREA, AND SOMETIMES SEVERAL STATES AWAY.

FLOOD CONTROL EXPENDITURES IN OUR NATION HAVE PREVENTED MORE THAN TEN TIMES THE DAMAGE BY FLOODS THAN THE FEDERAL EXPENDITURES COST. I AM NOT TALKING ABOUT B/C RATIOS, I AM TALKING ABOUT ACTUAL DOLLARS SPENT VERSUS ACTUAL DOLLARS OF DAMAGE PREVENTED.

GREAT CITIES OF THE WORLD, AS WELL AS THE UNITED STATES, WERE ALL BUILT ON RIVERS OR HARBORS IN ORDER TO HAVE ECONOMIC TRANSPORTATION. THIS GREAT NATION WITH ITS HIGHLY DEVELOPED AGRICULTURE AND INDUSTRIAL STRENGTH, VIVIDLY DEMONSTRATES THE SUCCESS OF CONCERTED EFFORTS MADE BY OUR CONGRESSIONAL REPRESENTATION AND THE ENGINEERING SKILLS OF THE ARMY CORPS OF ENGINEERS.

OUR FEDERAL PROGRAM OF FLOOD CONTROL AND RIVER DEVELOPMENT MUST GO ON. TO THINK OF ELIMINATING THIS IS UNACCEPTABLE, INCOMPREHENSIBLE, AND DEMONSTRATES A LACK OF UNDERSTANDING OF THE PROBLEMS AND CONCERNS OF THE PEOPLE THAT RESIDE OUTSIDE THE BELTWAY. FLOOD CONTROL, AS WELL AS NAVIGATION, IS AN INVESTMENT THAT HAS PAID OFF HANDSOMELY FOR OUR COUNTRY. THE LONG HISTORY OF THE WORLD PROVES THAT WHEN A NATION HESITATES IN ITS INFRASTRUCTURE DEVELOPMENT, IT THEN BEGINS TO SLIP BACKWARD. PLEASE DO NOT ALLOW THIS POLICY CHANGE IF FLOOD CONTROL THAT

IS CONTAINED IN THE FISCAL 1996 BUDGET FOR THE CIVIL WORKS OF THE ARMY CORPS OF ENGINEERS TO BE IMPLEMENTED.

THESE PROPOSED POLICY CHANGES REQUIRE LEGISLATION AND IT IS OUR HOPE THESE CHANGES WILL NOT BE ENACTED. IF THEY ARE, MOST IF NOT ALL FLOOD CONTROL AND DRAINAGE PROJECTS IN THE LOWER MISSISSIPPI VALLEY WILL NEVER BE CONSTRUCTED AND MANY OF THOSE GREAT PROJECTS COMPLETED WILL NOT BE ADEQUATELY MAINTAINED.

I APPRECIATE YOUR TIME AND SUPPORT IN THESE MATTERS AND FOR YOUR PAST COURTESIES.

PREPARED STATEMENT OF BILLY J. FELTY, CHIEF ENGINEER, ST. FRANCIS
LEVEE DISTRICT, ARKANSAS

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

My name is Billy J. Felty. I live in West Memphis, Arkansas and I am Chief Engineer of the St. Francis Levee District of Arkansas. I am filing this statement in behalf of the Levee and Drainage Districts in the entire St. Francis Basin, Arkansas and Missouri. We are the local cooperation organizations for the St. Francis Basin Project which is located in Southeastern Missouri and Northeastern Arkansas. The Basin covers 8,400 square miles of Delta land beginning at Commerce, Missouri at the foot of Sikeston Ridge on the North, to the mouth of the St. Francis River on the South, a distance of 235 miles; and extending West from the Mississippi River to the uplands of Bloomfield and Crowley's Ridges, having a maximum width of 45 miles.

The Civil Works Budget for FY 1996 appropriations for the Mississippi River and Tributaries is being reviewed by your Subcommittee and I request that you recommend \$10,000,000 for the St. Francis Basin, Arkansas and Missouri. The Civil Works Project within the St. Francis Basin is near completion and is scheduled to be complete by the year of 2000. There are several projects scheduled for this fiscal year and others needed before the project can be completed that are of vital interest to the Basin. Throughout the entire Lower Mississippi Valley we are witnessing a great industrial expansion and the economy of the area is improving rapidly each year. Agriculture, which a few years ago was the sole basis for the economy along the Mississippi River and within the basin, is now sharing its importance with industry. This growth and prosperity could not exist without drainage and flood protection.

We support the amount of \$332,050,000 requested by the Lower Mississippi Valley Flood Control Association for the Lower Mississippi Valley. This is the amount the Executive Committee of the Association feels is necessary to adequately fund the projects during the fiscal year.

We do, however, oppose part of the President's Budget for Fiscal Year 1996 concerning policy changes in flood control in our nation. The changes, if implemented, will effectively eliminate the Federal Flood Control programs. It would reduce funding from the Army Corps of Engineers Civil Works Program in the 1996 budget and transfer responsibility for flood control from the Federal Government to the states and local government. This would remove the Corps of Engineers from flood control projects. We express opposition

to the proposed changes and want to keep flood control in the capable hands of the Corps of Engineers.

We have a large number of members present today attending the Appropriations Hearings that have come to show their support for the St. Francis Basin Project and the Mississippi River and Tributaries Projects.

I feel this Subcommittee will give fair consideration to our needs and I appreciate the time given to advance the development of the water resource projects.

PREPARED STATEMENT OF KENNETH L. WEILAND, P.E., CEO AND CHIEF ENGINEER, YAZOO-MISSISSIPPI DELTA LEVEE BOARD

This statement has been prepared by Kenneth L. Weiland, P.E., CEO and Chief Engineer for the Yazoo-Mississippi Delta (YMD) Levee Board. It is submitted today, March 21, 1995, on behalf of the entire Levee Board and the citizens they represent in the Mississippi Delta, which includes the Yazoo and Sunflower River Basins. The YMD Levee Board supports the general funding request for fiscal year 1996, made before you today by the Lower Mississippi Valley Flood Control Association, and as members of this Association, join in their praises of your continuing support for the desperately needed flood control projects within the Mississippi River and Tributaries (MR&T) Project. We are extremely concerned about current policies and rhetoric advocating the federal government's retreat from its long standing support of flood control throughout the Mississippi valley. We respectfully request your attention, not only to the vital monetary needs of flood control, but to the equally essential policy and administration aspects of our mission.

The following paragraphs identify certain projects included within the MR&T project that merit special mention, followed by a tabular listing of our priority funding request.

UPPER YAZOO PROJECTS - REFORMULATION/CONSTRUCTION

The U. S. Army Corps of Engineers completed the reformulation of the Upper Yazoo Projects and issued the final Reformulation Report in December of 1993. This project, located within the Yazoo Basin, will allow the Corps to better control the four flood control reservoirs (Arkabutla, Sardis, Enid and Grenada) reducing the risk of interior flooding. Though the reservoirs have been completed, thus reducing the frequency of headwater flooding of the Delta from the bluff hills, the channels serving to convey the stored water from the reservoirs to the Mississippi River have never been completed, causing an unacceptable frequency of flooding and flood damages. We are proud to report that after a delay of six years, construction is underway on this project. It is imperative that full funding be given to the Corps so that this construction can proceed on the accelerated schedule as requested by Mississippi Governor Kirk Fordice in 1992.

SUNFLOWER BASIN CHANNEL MAINTENANCE PROGRAM

Over time, all streams in the Delta lose their capacity to convey design discharges due to siltation of the bottom of the streams. In the month of July, 1989, sections of the Mississippi Delta along the Sunflower River system experienced significant flooding over half grown row crops of food and fiber. In response to this devastation, the Board of Mississippi Levee Commissioners (MLB), located in Greenville, MS, requested a study by the Corps of Engineers (Corps) to determine whether the reduction of the Sunflower River system flow capacities had contributed to the flooding, and thus, whether the Corps

should begin its obligatory maintenance of the channels in this system. Subsequent surveys by the Corps reflected loss of channel capacity from the original design of approximately forty (40) percent. The YMD Levee Board, whose District shares in the damages resulting from the overflow of the rivers in this area joins the MLB in full support of the funding request by the Corps for this maintenance project.

MISSISSIPPI DELTA MISSISSIPPI STUDY

In October of 1992, the YMD Levee Board and the MLB signed sponsorship agreements with Vicksburg District to begin surveys for those portions of the Sunflower River system not included in the reach of the above mentioned maintenance project. The study is also being coordinated with the Soil Conservation Service, who is conducting a water supply study on the Sunflower River System. This study will identify reaches of this river system above Highway 82 that are in need of maintenance as well as compile much needed data on land use changes that have taken place in the Sunflower basin since the original project was completed in the 1960's. The YMD Levee Board respectfully requests your support of this important study.

MISSISSIPPI RIVER LEVEES

After witnessing the total devastation on the Upper Mississippi River during the summer of 1993, there can be no question as to the importance of the MR&T projects, and the continued maintenance and upkeep of the main line levee system along the Lower Mississippi River. Our Levee Board, though proud of our long record of protection of the main line levee in our District, understands that your generous funding to insure the timely completion of the MR&T project, as well as major maintenance of the completed portions of the project, are the key to preventing a catastrophic failure of the system. We ask that you not only continue funding for construction and maintenance activities within our district, but also for the entire reach included within the MR&T project. This system of levees and channel work stand out to the world as a model of governmental resolve and success to protect its people, economy, and infrastructure from the ravages of flood waters.

DESCRIPTION	EXECUTIVE BUDGET REQUEST FY '96 \$(000)	YMD LEVEE BOARD REQUEST FY '96 \$(000)
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Mississippi River Levees, AR, IL, KY, LA, MS, MO, and TN

Tallulah-Magna Vista, MS, Berm, Item 475-LA	600	600
Tallulah-Magna Vista, MS, Berm, Item 475-LB	1,500	1,500
Carolina-Valewood, MS, Berm, Item 501L-A	300	300

Yazoo Basin, MS - Construction Funding

Upper Yazoo Projects	11,200	11,200
Tributaries	2,948	2,948
Big Sunflower River	8,920	8,920
Main Stem	25	25
Reformulation Unit	2,810	2,810
F&WL Mitigation Lands	25	25
Demonstration Erosion Control	22,000	22,000

DESCRIPTION	EXECUTIVE BUDGET	YMD LEVEE BOARD
	REQUEST FY '96 \$(000)	REQUEST FY '96 \$(000)
<u>Yazoo Basin, MS - Maintenance Funding</u>		
Tributaries	1,135	1,135
Big Sunflower River	2,012	2,012
Greenwood	860	860
Main Stem	1,390	1,390
Will M. Whittington Auxiliary Channel	474	474
Yazoo City	709	709
Yazoo Backwater Area	529	529

Yazoo Basin, MS - Surveys & Study Funding

Mississippi Delta	1,800	1,800
TOTAL REQUEST FOR PRIORITY ITEMS	59,237	59,237

PREPARED STATEMENT FROM THE RED RIVER VALLEY ASSOCIATION,
SHREVEPORT, LA

I. SUMMARY OF FY96 REQUESTS**RED RIVER VALLEY ASSOCIATION****PROJECT****THOUSANDS****BASIN WIDE PROJECTS****Appropriations**

Red River Waterway Project	
Mississippi River	\$16,673
Shreveport-Bossier City, Louisiana	
Operations and Maintenance	9,714
Red River Chloride Control Project	150
Bank Stabilization	
Levees and Bank Stabilization Below Denison Dam	3,300
Emergency Bank Protection	14,200
Bank Stabilization	200
Index, Arkansas to Denison Dam	

ARKANSAS PROJECTS**Appropriations**

Levees and Bank Stabilization Below Denison Dam	*
Emergency Bank Protection	12,000
Finn, Hurricane, Dickson & Canale Revetments	
Little River County Levee Construction and Modification	-
McKinney Bayou Reconnaissance Study	450

PROJECTTHOUSANDS

LOUISIANA PROJECTS

Appropriations

Red River Waterway Project	*
Emergency Bank Protection	2,200
Cat Island Revetment	
Red River Backwater Area	11,294
Sicily Island	
Aloha-Rigolette Project	2,379
Lower Red River South Bank Levee	577
Emergency Bank Protection - Cat Island Revetment	2,200

Authorizations/Appropriations Supported

Bayou Cocodrie and Tributaries	FCC
Atachafalaya Basin	FCC

OKLAHOMA PROJECTS

Appropriations

Red River Chloride Control Project	*
Red River Bank Stabilization,	*
Index, Arkansas to Denison Dam	
Emergency Bank Stabilization	*

TEXAS PROJECTS

Appropriations

Red River Chloride Control Project	*
Cypress Valley Watershed Projects	FCC
Bowie County Levee District #1	900
McGarth Creek Project	110
Cooper Lake and Channels	FCC
Lake Wichita/Holliday Creek	FCC
Emergency Bank Stabilization	FCC

FCC = Full Corps Capability

* = Included under Basin Wide request

II. ATTENDEESRED RIVER VALLEY ASSOCIATION

John F. Stroud, Jr., President of the RRVA, Texarkana, AR
 Phil Alford, Vice-President, Lewisville, AR
 Jimmy Banks, Vice-President, Texas, Wichita Falls, TX
 Jerry Boughton, Vice-President, Louisiana, Shreveport, LA
 William C. Chapman, Vice-President, Oklahoma, Ardmore, OK
 Rich Brontoli, Executive Director, Bossier City, LA
 Norman Budd, Director, Alexandria, LA
 Ron Glenn, Director, Wichita Falls, TX
 Edward Hawkins, Director, Foreman, AR
 Ed Lehman, Director, Vernon, TX
 Ben Littlepage, Director, Natchitoches, LA
 Gordon Matteson, Director, Foreman, AR
 David Potter, Director, Texarkana, TX
 Bill Routon, Director, Hope, AR
 Bob Webb, Director, Washington, AR

ARKANSASArkansas Red River Commission

Phil Alford, Chairman, Lewisville, AR
 Ed Hawkins, Foreman, AR
 Gordon Matteson, Foreman, AR
 David Potter, Texarkana, AR
 Bill Routon, Hope, AR
 John Stroud, Texarkana, AR
 Bob Webb, Washington, AR

LOUISIANABossier Levee District

Timothy Larkin, President, Bossier City, LA
 Paul Johnson, Second Vice President, Bossier City, LA
 Ken Corley, Commissioner, Bossier City, LA

Bossier Parish Police Jury

Frank Viviano, Bossier City, LA

Caddo-Bossier Port Commission

Wayne T. Davis, Plain Dealing, LA
 Jerry C. Harris, Bossier City, LA
 Robert Harris, Shreveport, LA
 John W. Hoit, Jr., Executive Director, Bossier City, LA
 R. M. Prestridge, Bossier City, LA

Caddo Levee District

Sam Barnwell, Shreveport, LA
 Harold White, Shreveport, LA
 Sam Windham, Shreveport, LA

Caddo Parish Commission

Ken Epperson, Shreveport, LA
 Wayne Waddell, Shreveport, LA

LA Department of Transportation and Development

Curtis Patterson, Baton Rouge, LA

Red River Development Council

Dr. Leland Scoggins, Natchitoches, LA

Red River Valley Area Council

Jack McBride, Alexandria, LA

Red River Waterway Commission

Ben Littlepage, Executive Director, Colfax, LA
 Ken Guidry, Asst Executive Director, Natchitoches, LA
 Robert Breedlove, Natchitoches, LA
 Hank Bruser, Natchitoches, LA
 Norman Budd, Alexandria, LA
 John Bundy, Benton, LA
 Marc Dupuy, Jr., Marksville, LA
 Richard Gibson, Coushatta, LA

Oaeil Hodnett, Colfax, LA
 Pat Johnson, Natchitoches, LA
 Robert Lucky, Natchitoches, LA
 Cathy Penrod, Natchitoches, LA
 Albin Provosty, Alexandria, LA
 Larry Taylor, Bossier City, LA
 Joel C. Thomas, Jr, Shreveport, LA
 Randy Walters, Natchitoches, LA

OKLAHOMA

William C. Chapman, Ardmore, OK

TEXAS

Red River Authority of Texas

Ed Lehman, Vernon, TX
 Ronald Glenn, Wichita Falls, TX

Wichita County Water District #2

Jimmy Banks, Wichita Falls, TX

INTERESTED PARTIES

Mrs. Dorothy Alford, Lewisville, AR
 Mrs. Shirley Banks, Wichita Falls, TX
 Mrs. Phyllis Breedlove, Natchitoches, LA
 Mrs. Deanna Bundy, Benton, LA
 Mrs. Elizabeth Chapman, Ardmore, OK
 Mrs. Bonnie Corley, Bossier City, LA
 Mrs. George Alice Dupuy, Marksville, LA
 Mrs. Sue Glenn, Wichita Falls, TX
 Mrs. Charlene Hawkins, Foreman, AR
 Mrs. Mergretta Holt, Bossier City, LA
 Mrs. Kim Johnson, Natchitoches, LA
 Mrs. Timothy Larkin, Bossier City, LA
 Mrs. Janette Lehman, Vernon, TX
 Mrs. Kathryn Littlepage, Colfax, LA
 Mrs. Charlotte Potter, Texarkana, AR
 Mrs. Susanne Provosty, Alexandria, LA
 Mrs. Bonnie Routon, Hope, AR
 Mrs. Marietta Stroud, Texarkana, AR
 Mr. T. Taylor, Bossier City, LA
 Mrs. Elizabeth Thomas, Shreveport, LA
 Mrs. Maxine Viviano, Bossier City, LA
 Mrs. Robin Walters, Natchitoches, LA
 Mrs. Gwen Webb, Washington, AR

III. LIST OF WITNESSES

Introduction of the group and opening remarks:

Mr. John F. Stroud, Jr. President Red River Valley Association	Attorney at Law Smith, Stroud, McClerkin, Dunn & Nutter Texarkana, Arkansas
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Introduction of witnesses:

Mr. Richard Brontoli
Executive Director
Red River Valley Association

The following witnesses will present testimony on behalf of the Red River Valley Association before the hearings of your Subcommittee today:

Mr. Ron Glenn
Vice-President - Texas
Red River Valley Association

General Manager
Red River Authority
of Texas
Wichita Falls, Texas

Mr. William C. Chapman
Vice-President - Oklahoma
Red River Valley Association

Rancher/Attorney
Ardmore, Oklahoma

Mr. Jerry Boughton
Vice-President - Louisiana
Red River Valley Association

Banker
Shreveport, Louisiana

Mr. Pat Johnson
Commissioner-at-Large
Red River Waterway Commission

Construction
Natchitoches, Louisiana

Mr. John Stroud
President
Red River Valley Association

Attorney at Law
Smith, Stroud, McClerkin,
Dunn & Nutter
Texarkana, Arkansas

IV. RRVA STATEMENT

Mr. Chairman and members of the Committee. I am John Stroud, and I am pleased to represent the Red River Valley Association as its President. Our organization was founded in 1925 with the express purpose of uniting the citizens of Arkansas, Louisiana, Oklahoma, and Texas to develop the land and water resources of the Red River Basin.

You will shortly hear presentations from individuals who will address the specific needs of their particular states. However, before they begin, I would like to briefly comment on a few of the concerns we have for the future economic well-being of the citizens residing in the four state Red River Basin area.

First, Navigation. Thanks to this committee's continued support, the Red River Navigation project to Shreveport-Bossier City, Louisiana, -- the largest metropolitan area in the River Basin -- is complete. Locks and Dams 4 and 5 were placed into operation January 1, 1995. We will finally realize the benefits this project will bring to the area -- and the nation -- and thank you for your support of this project. We now ask for your continued support to restudy the feasibility of extending navigation from Shreveport-Bossier, Louisiana to various points within the State of Arkansas. The entire area continues to suffer major unemployment, and the navigation project, although not the total solution, will help revitalize our economy. Also, there are two important military facilities; Barksdale AFB, and the Louisiana Army Ammunition plant

within close proximity of Shreveport-Bossier City. Ft. Polk is downstream, and Long Horn Army Ammunition Plant is at Marshall, Texas and Lone Star Army Ammunition Plant is located upstream near Texarkana. We continue to believe that water transportation from this area will be invaluable in future national conflicts. While we hope that our nation will not be faced with such future aggression, should there be a need, a completed Red River Waterway could make it possible for our area to respond more quickly and more effectively.

Second, Bank Stabilization. One of the most important continuing programs on the Red River is bank stabilization to stop the loss of valuable farmland that washes down stream to form sandbars and interfere with the navigable channel. All of these revetment projects are compatible with subsequent navigation and we urge that they be continued in those locations designated by the Corps of Engineers to be the areas of the worst bank caving.

Third, Flood Control. You will recall that in 1990 major areas of northeast Texas, Southwest Arkansas and the entire length of the Red River in Louisiana were ravaged by the worst flooding to hit the region since 1945 and 1957. More than 700,000 acres were flooded with total damages estimated at \$20.4 million. However, it could have been much worse. The Corps of Engineers estimates that without the flood control measure authorized by Congress over the past several decades an additional 1.3 million acres would have been flooded with an estimated \$330 million in additional flood damage to agricultural and urban developments. We continue to consider flood control a major objective of the Red River Valley Association.

And, Fourth, Clean Water. Nearly 4,000 tons of natural salts, primarily sodium chloride, enter the upper reaches of the Red River each day, rendering downstream waters unusable for most purposes. Several years ago, Congress authorized funding for the Truscott Brine Lake project, which is located on the South Fork of the Wichita River in King and Knox Counties, Texas. After the project became operational in 1987, an independent panel of experts found that the project not only continues to perform beyond design expectations insofar as providing cleaner water, but has an exceptionally favorable cost benefit ratio, in fact, one of the best cost-benefit ratios of any federally funded project in the nation. The Association urges Congress to continue supporting the Chloride Control Project in order to assure a clean water supply for residential, commercial, industrial, and agricultural uses.

We are sincerely grateful to you for the past support you have given our various projects. We hope that we can count on you again to fund our needs and complete the projects that will help us diversify our economy and create the jobs so badly needed by our citizens.

I'm now pleased to present Rich Brontoli, the Executive Director of the Red River Valley Association who will introduce the witnesses for each of the four states.

Thank you,

V. TEXAS

Mr. Chairman and Committee Members, my name is Ronald J. Glenn, Vice President, Texas, of the Red River Valley Association, and General Manager of the Red River Authority of Texas. I represent not only the Red River Valley Association and its four state area, but more specifically, the people who live and work in a 43 county area of the Red River Basin in Texas. Accordingly, we support not only the projects I speak of today, but all of the Red River Valley requests presented.

1. The Lake Wichita/Holliday Creek Project, located in Wichita County, Texas with a total project cost of \$48 million.
 - a. Construction is in final stage of completion
 - b. Project has \$1.7 million carryover from FY-95.
 - c.. No additional funds are needed for completion of the project.
2. The McGrath Creek Flood Control Project, a tributary of Holliday Creek, also located in Wichita County, Texas with a total project cost of \$11.3 million.
 - a. Right-of-way acquisition and initial construction is underway.
 - b. \$110,000 is requested to award construction contracts in June 1996 and continue construction.
 - c. The project is cost shared by the City of Wichita Falls at 25%.
3. The Bowie County Levee Project, located along the Red River on the Texas side near Texarkana, Texas.
 - a. \$600,000 was appropriated in FY95 to initiate design and construction efforts for rehabilitation or replacement of levees.
 - b. \$900,000 is requested for FY96 to continue to prepare plans and specifications and initiate construction.
4. Cypress Valley Watershed Project, a series of studies in the Big Cypress Valley region (TX) and Caddo Lake (TX & LA).
 - a. Support water resource projects which provide economic opportunities.
 - b. Request appropriations at the level of Corps of Engineers capabilities.
5. A Bank Stabilization Demonstration Project located between Denison Dam and Index, Arkansas.
 - a. Support a "Demonstration Project" along the Red River where bank erosion to prime farmland is great.
 - b. Request the use of a new, non-traditional method; an underwater Bendway Weir which controls river energy and bank erosion.
 - c. \$200,000 is requested to analyze site locations and prepare plans and specifications.
6. The Red River Basin Chloride Control Project, located in west central Texas and southern Oklahoma with a total project cost of \$215 million.
 - a. \$16.0 million was appropriated in FY-95 to accelerate engineering design, real estate acquisition and initiate construction of the Crowell Brine Dam, Area VII and Area IX; to continue engineering design for Areas VI and XIII-XIV.
 - b. The Supplemental Final Environmental Impact Statement (SFEIS) was scheduled to be completed by the end of October 1994, with the advertisement of the contract for the Crowell Brine Lake embankment, spillway and access road in November 1994. These dates were included in the project schedule supporting the FY-95 budget request.

 Due to a conflict with the USFWS, completion of the SFEIS was delayed pending further study to determine the extent of possible impacts to fish and wildlife, and their habitats along the Red river and Lake Texoma.
 - c. The USCOE is scheduled to complete the SFEIS in February 1996 and will then be prepared to proceed with the previous directives of the Secretary of the Army to initiate construction of the Crowell Brine Dam and Areas VII and IX.

- d. The project has \$14.3 million carryover from FY-95 which is adequate to fulfill the Corps' capability for this fiscal year. However, we are requesting \$150,000 be added to the budget and the Corps capability to immediately begin ecological monitoring in the upper Red River Basin including Lake Texoma for the purpose of establishing firm baseline data as well as initiating the long-term environmental monitoring.

The monitoring plan will insure that the impacts and effectiveness of the Chloride Control Project are within the expected limits and will not become detrimental to the environment or its ecosystems.

We appreciate this committee's support and time to consider the requests from the citizens of Texas within the Red River Valley Region.

Thank you.

VI. OKLAHOMA

Mr. Chairman and Committee Members, I am William C. Chapman, and I live near Madill, Oklahoma, on a farm/ranch in Marshall and Johnston Counties. My father came to Oklahoma in 1915 at age 27 and lived the rest of his 94 years in this area as a farmer and rancher. His parents purchased agricultural property in Red River County Texas, in 1926, and it has remained in my family since then and is now owned by me. My family has been very interested in the progress of the Red River Valley for three generations. I presently serve as Vice-President of the Oklahoma delegation of the Red River Valley Association and am speaking today on behalf of the entire Oklahoma delegation. Because we believe that any federal monies spent on the following projects are really investments in the future of not only the Red River Valley but of the surrounding states and will return several times the original investment in benefits that will eventually accrue to the federal government, we firmly endorse the following projects in the amounts indicated:

(1) Red River Waterway Project (Navigation)	\$26,387,000
(2) Bank stabilization and Red River Levees below Denison Dam	\$ 3,300,000
(3) Emergency Bank Projection	\$11,267,000
(4) Red River Basin Chloride Control Project	\$ 150,000
(5) Bank Stabilization Demonstration Project Index, AR to Denison Dam	\$ 200,000

We firmly believe that it is economically feasible as well as both logical and practical to bring navigation of the Red River to Denison Dam. In pursuit of that goal the completion of Locks and Dams 4 and 5 have insured the success for the development of navigation and commerce to the areas from Shreveport, Louisiana, downstream to the Mississippi River. The next step is to extend navigation past Shreveport-Bossier City, LA to Index, AR, which will consider all industries that will use this stretch of river from Arkansas, Louisiana, Oklahoma and Texas.

We further believe that it is essential to protect the banks from cavings and erosion along the Red River below Denison Dam. The Federal Government constantly encourages its farmers to protect our lands against all forms of erosion, so it only makes sense to be consistent. It must do its share in preventing erosion along the nation's navigable streams. It also is imperative to protect its investment in navigation and flood control downstream. For these reasons we support Bank Stabilization and Red River Levees below Denison Dam and Emergency Bank Protection Projects.

We believe there is a new technique for bank stabilization which must be allowed as a demonstration project under the authorized project; Bank Stabilization, Index, AR to Denison Dam. This new technique, underwater bendway weirs may prove to be less expensive than conventional methods and be more efficient in controlling the energy of the River. Much prime farmland in Oklahoma and Texas is lost each year to river erosion and we must investigate all avenues to correct this problem.

The Final project that we wish you to consider concerns the very ability to fully utilize the surface water of the Red River during almost its entire journey across the four states of Texas, Oklahoma, Arkansas, and Louisiana. At the current time the chloride content of the Red River is such that it is not usable but in a few isolated cases for municipal, industrial and agricultural uses. This is due to the presence of ten major chloride sources located on the banks or within the tributaries of the Red River in Oklahoma and Texas.

Due to a recent conflict with U.S. Fish and Wildlife Service completion of the Supplemental EIS is delayed until February 1996. We support the Tulsa District, Corps of Engineers, continuation of design, land acquisition and completion of the SEIS. Construction must continue in 1996.

We appreciate this committees support and time to consider the requests from the citizens of Oklahoma within the Red River region.

VII. LOUISIANA

Mr. Chairman and Committee Members, my name is Jerry Boughton, Vice-President, Louisiana, Red River Valley Association. Not only do I represent the citizens of Louisiana and support projects in Louisiana, but support the requests of my colleagues from Arkansas, Texas and Oklahoma. The projects in their states will provide benefits for the Red River citizens of Louisiana.

We request your support to fund the following projects:

1. Red River Waterway Project
 - a. Construction \$16,673,000
 - b. Operation and Maintenance \$ 9,714,000
2. Red River Chloride Control Project \$ 150,000
3. Aloha-Rigolette Project \$ 2,379,000

We appreciate the support of your subcommittee to support the completion of navigation to Shreveport/Bossier City providing us the opportunity to increase our industrial base, create jobs and provide economic growth. It is imperative you continue to provide operational and maintenance funds, funding to complete navigation structures and funding to fully develop recreation sites for us to fully realize the total benefits of this project.

The Chloride Control Project, which is located in the far west reaches of Texas and Oklahoma, will directly impact northwest Louisiana. Completion of this project will provide clean water for municipal, industrial an agricultural use without the need of expensive treatment. The irrigation value alone will greatly increase agricultural production which in turn will increase use of our water transportation system.

I would now like to introduce Mr. Pat Johnson who will provide detailed testimony for water resource projects sponsored by the Red River Waterway Commission.

On behalf of the State of Louisiana and the Red River Waterway District, it is my honor and privilege to address this subcommittee on the Red River Navigation Project. Navigation from the Mississippi River to Shreveport/Bossier City, Louisiana is a reality. The first leg of navigation in the Red River Valley is operational and Louisiana's long term goals shift from construction to operations and economic development. Our short term goals remain clear: Support of the efforts of the Administration and the Corps of Engineers in completing the ongoing construction projects, such as capping out the revetments for safe navigation for both commercial and recreational users, and developing recreation and mitigation projects. We request that you appropriate \$26,383,000 for FY96 to continue our mission.

It is imperative that we continue to strive and urge development of bank stabilization projects and flood control projects throughout the Red River Valley. These valley projects are critical to the citizens of Louisiana, Arkansas, Oklahoma and Texas. Louisiana projects specifically are Cat Island Revetment in Bossier Parish, the Aloha-Rigolette project, the Bayou Rapides Flood Control Project, and the Red River Backwater Project. Our four state area continues to work together in a cooperative effort on these and other Valley projects.

We strongly advocate support for the Red River Chloride Control Project which is fundamental to developing usable river water for commercial, industrial and agricultural purposes. We must press forward and continue with progress in chloride abatement.

In conclusion, it is evident that our level of commitment to the success of the Red River Valley projects has not wavered. We have come a long way and we will continue to work in a cooperative effort toward our goals.

The privilege of addressing this subcommittee is greatly appreciated.

VIII. ARKANSAS

1. Red River Emergency Bank Protection
(Louisiana, Oklahoma, Arkansas and Texas)
for the construction of Dickson Revetment and
Canale Revetment and for funds to initiate
engineering and design of Finn Revetment
Phase II and Hurricane Revetment.
Funds requested for FY96. \$12,000,000
2. Red River Levees and Bank Stabilization
Below Denison Dam (Texas, Arkansas and
Louisiana) to continue the levee rehabilitation
project by the construction of Item No. 5 and
Item No. 9 and the design of Item No. 6.
Funds requested for FY96 \$3,300,000
3. McKinney Bayou Project to initiate reconnaissance
study of drainage in Miller County, Arkansas.
(included in President's budget)
Funds requested for FY96 \$450,000
4. Little River County, Arkansas - feasibility study
for levee construction and modification (but we
request the language set forth in the narrative
be included in the appropriation bill)
Funds requested for FY96 NONE

5. Red River Chloride Control Project (we request the language set forth in the narrative be included in the appropriation bill)

Funds requested for FY96

\$150,000

As attorney for the Red River Commission of Arkansas, I wish to thank the members of this Committee for the opportunity to again express the concerns, needs and priorities of funding vitally needed from the Congress to continue the orderly development of the Red River Valley in Southwest Arkansas.

Twenty-seven years ago, the bank caving in Southwest Arkansas accelerated to such an extent that the levee boards in that area banded together to form an association to present testimony to the Congress with a united voice. At that time, some of the upstream dams in Arkansas and Oklahoma had been completed which substantially alleviated the threat of floods, but which rapidly accelerated the bank caving due to the river remaining at one-half to two-thirds bank full for long periods of time. Since that time, upstream dams known as Millwood, Gillham, Dierks and DeQueen have been completed which have further reduced the threat of flooding, but which have accelerated the bank caving even more.

The State of Arkansas became concerned at this rapid irreparable loss of the most fertile farmland in Southwest Arkansas and recognized that bank stabilization could be a prelude to navigation into Southwest Arkansas. Therefore, twenty-one years ago the Arkansas General Assembly created the Red River Commission upon the recommendation of Governor Dale Bumpers, now the Senior United States Senator for the State of Arkansas. The Commission was vested with the authority to furnish the local cooperation necessary for the construction and study of projects and to coordinate with the Corps of Engineers and the Congress to develop the water resources of the Red River in Arkansas. Southwest Arkansas is fortunate to have an abundance of water, rich soil and timber resources, but we vitally need the assistance of Congress to continue the bank stabilization projects for the preservation of these natural resources.

Following the disastrous flood of May 1990, there can be no doubt of the importance of properly maintained levees and of bank stabilization. All areas not protected by properly maintained levees were flooded and the only protection from enormous bank caving was where revetment projects had been constructed by the Corps of Engineers. We are therefore asking for funds to continue the levee rehabilitation project currently underway in Arkansas to correct the deficiencies and make the levees easier to properly maintain.

With navigation now a reality to Shreveport, Louisiana, we are most pleased that the Corps of Engineers is currently conducting a reconnaissance study of the feasibility of extending the authorization of navigation to Southwest Arkansas.

The Red River Chloride Project is extremely important to the citizens of the Red River Valley in Texas, Oklahoma, Arkansas and Louisiana. Its completion will provide water quality benefits to municipalities, agriculture and industry.

RED RIVER EMERGENCY BANK PROTECTION (LOUISIANA, OKLAHOMA, ARKANSAS AND TEXAS)

The most important need for funding under this program in Arkansas is for the construction of Finn Revetment Phase II, Dickson Revetment and Canale Revetment. Continued neglect of the caving banks in Arkansas will substantially worsen alignment of the river, making future realignment for navigation and stabilization more costly and difficult and will erode the remaining works resulting in a waste of the original construction funds. Many caving banks still have an existing alignment that is usable for the navigation channel when it is authorized, and those banks should be preserved now.

These three Revetments should be initiated to stop the loss of valuable farmland and to stop the transfer of large quantities of sediment to the navigation system downstream. These reaches of the river have been identified by the Corps of Engineers as having the most severe bank caving.

We urge that \$12 million be appropriated for Emergency Bank Protection for the construction of Dickson Revetment and Canale Revetment and for funds to initiate engineering and design of Finn Revetment Phase II and Hurricane Revetment for FY96 and that such sum remain available until expended for such design and construction.

RED RIVER LEVEES AND BANK STABILIZATION BELOW DENISON DAM

The Corps of Engineers indicated a few years ago that the levees along the main stem of the Red River in Arkansas required reshaping to conform to current design standards. Funding is needed to allow the Corps of Engineers to continue to determine the deficiencies in the project levees in Arkansas from Index, Arkansas to the Louisiana State Line that are a matter of grave concern to the levee districts, and to continue detailed design for construction of remedial measures. The levees were severely tested by the May 1990 flood, and it is apparent that reshaping is needed to allow vehicular traffic on top of the levees for inspection during a flood and to allow more comprehensive maintenance to be accomplished by having a more gentle slope on both sides of the levees which will also increase their integrity. This study began during fiscal year 1992 from a previous appropriation, and the Corps of Engineers let a contract from funds appropriated by the Congress for fiscal year 1994 to rehabilitate 2.4 miles of the levee beginning at the Arkansas-Texas boundary and extending downstream on the right descending bank of Red River. The Congress appropriated \$3.5 million to continue the project during fiscal year 1994 and \$1.5 million during fiscal year 1995 to construct Items No. 2, 3 and 4 and the association urges that \$3.3 million be appropriated to continue the levee rehabilitation project in Arkansas for the construction of Item No. 5 and Item No. 9 and to design Item No. 6 during fiscal year 1996.

MCKINNEY BAYOU PROJECT

The Corps of Engineers testified earlier this year for funds to initiate a reconnaissance study of drainage in Miller County, Arkansas. The project is known as the McKinney Bayou Project as it is the principal drainage ditch in the County. Due to the thousand of acres of land cleared in Miller County during the past 25 years, the ditch is grossly inadequate to handle the drainage after heavy rains. The Red River Valley Association joins with the Arkansas Red River Commission to request that the \$450,000 contained in the President's budget be appropriated to allow initiation of this reconnaissance study during FY96.

LITTLE RIVER COUNTY, ARKANSAS

Reconnaissance studies have identified a Federal interest in this economically feasible project. Congress appropriated \$200,000 for a feasibility study to be performed during FY96 but the study has not been performed for lack of a cost sharing non-Federal sponsor. We request that these funds be used for such feasibility study without the requirement of cost sharing. This project should be coordinated with the Bowie County Levee project, funds for which are being sought by the State of Texas as the two projects substantially affect each other.

RED RIVER CHLORIDE CONTROL PROJECT

Congress appropriated \$16M for this project during FY96, but it has not been expanded due to objections to the project filed by the U. S. Fish & Wildlife Service. We ask that these funds remain available for such project until the problem with the U. S. Fish & Wildlife Service has been resolved.

IX. PLATFORMS, RESOLUTIONS AND PROGRAM OF WORK

INTRODUCTION

The Red River Valley Association is a voluntary group of citizens banded together to advance the economic development and future well-being of the citizens of the four state Red River Basin area in Arkansas, Louisiana, Oklahoma and Texas.

For the past 70 years, the Association has done notable work in the support and advancement of programs to develop the land and water resources of the Valley to the beneficial use of all the people. To this end, the Red River Valley Association offers its full support and assistance to the various Port Authorities, Chambers of Commerce, Economic Development Districts and other local governmental entities in developing the area along the Red River.

The Resolutions contained herein were adopted by the Association during its 70th Annual Meeting in Shreveport, Louisiana on February 16, 1995, and represent the combined concerns of the citizens of the Red River Basin area as they pertain to the goals of the Association, specifically:

- Economic and Community Development
- Flood Control
- Bank Stabilization
- A Clean Water Supply for Residential, Commercial,
- Industrial and Agriculture Uses
- Solar and Hydroelectric Power Generation
- Recreation
- Navigation
- Environmental Balance

The Red River Valley Association is aware of the constraints on the federal budget, and has kept those restraints in mind as these Resolutions were adopted. Therefore, and because of the far-reaching regional and national benefits addressed by the various projects covered in these Resolutions, we urge the members of Congress to review the materials contained herein and give serious consideration to funding the projects at the levels requested.

X. BASIN WIDE PROJECTS

APPROPRIATIONS RESOLUTIONS

RED RIVER WATERWAY PROJECT

The Rivers and Harbors Act of 1968 authorized the Red River Waterway Project featuring a navigation channel from the Mississippi River to Shreveport-Bossier City, Louisiana and Daingerfield, Texas; and stabilization of the banks of the Red River from the Mississippi River to Shreveport-Bossier City, Louisiana; Shreveport-Bossier City, Louisiana to Daingerfield; Shreveport-Bossier City, Louisiana to Index, Arkansas; and vicinity of Index, Arkansas to Denison Dam, Texas. Construction of all Locks and Dams are now complete. Locks and Dams 4 and 5 in the Red River to Shreveport-Bossier City, Louisiana were placed into operation January 1, 1995.

It is requested that \$16,673,000 be appropriated to direct the Corps of Engineers to continue construction on the Red River Navigation Project. In addition \$9,714,000 is requested for operation and maintenance funds to keep the Red River a safe navigable waterway.

Completion of this stretch of the Red River Waterway will significantly boost the economy throughout the river basin and reduce widespread unemployment in the area. Average annual shipping on the waterway is expected to be over 8 million tons and estimated benefits are expected to be greater than \$107 million annually. This type of progress should not be denied citizens of the Red River Basin and the nation.

At present, the communities of Alexandria/Pineville in Rapides Parish, Natchitoches Parish, and Shreveport-Bossier City in the parishes of Caddo and Bossier, have purchased lands for the development of public port facilities in their respective areas.

The Caddo-Bossier Port Commission completed Phase A of their port in Feb. 1993. Phase 1 construction continues. The \$8.5 million allocated for Phase 1 is also complete. The Caddo-Bossier facilities are being developed in response to needs expressed for the availability of waterborne transportation facilities by many

existing industries in the Port Commission's service area which extends to Dallas/Ft. Worth, according to a study commissioned by the Port Commission. They will start moving cargo across their facility this year with the announcement of two major petroleum companies relocating to the port as well as a major ethanol plant headquartered in New England.

The Alexandria Regional Port has infrastructure in place and has been the nations largest port for military cargo, which uses the waterway to transport military training units to Ft. Polk, Louisiana. Development for commercial commodities at the port continues.

The Red River Navigation Project originally was recognized and should now be viewed as a whole project producing benefits for the entire region and nation.

RED RIVER BASIN CHLORIDE CONTROL PROJECT

Natural mineral pollutants in the upper reaches of the Red River Basin are rendering downstream waters unusable for most purposes. The primary pollutants are chlorides and sulfates.

The U.S. Public Health Service initiated a study in 1957 to locate the natural pollution areas and determine the contribution of pollutants from the individual areas to the Red River. It was determined that 10 natural salt source areas located in the basin contribute a daily average of about 3,600 tons of salt (as NaCl) to the Red River. The U.S. Army Corps of Engineers, Tulsa District, entered the study in 1959 to recommend measures to control the natural pollution. Structural measures were recommended for 8 of the 10 salt source areas.

An experimental project at Area V near Estelline, Texas was authorized by the Flood Control Act of 1962. The project consists of a 9-foot-high by 340 foot diameter earthen dike encompassing a brine spring and a 4-foot-wide concrete outlet flume with stoplogs to control flow. With the project in operation since January 1964, surface flow from the spring has been suppressed, thus preventing over 240 tons of chlorides per day from entering Prairie Dog Town Fork of the Red River.

Structural measures for chloride control at Areas VII, VIII, and X in the Wichita River Basin above Lake Kemp were authorized by the Flood Control Act of 1966 (PL 89-789), and structural measures for Areas VI, IX, XIII, and XIV were authorized by the Flood Control Act of 1970 (PL 91-611). Actual construction, however, was not to be initiated until approved by the Secretary of the Army and the President. The Flood Control Act of 1970 was amended by the Water Resources Development Act of 1976 to eliminate the required approval of the President to initiate construction.

The Water Resources Development Act of 1974 (PL 93-251), specifically authorized construction of chloride control measures at Area VIII, located on the South Fork of the Wichita River in King and Knox Counties, Texas. The project includes a low-flow dam with a deflatable weir to collect brine flows emitting from the area, Truscott Brine Reservoir, located near Truscott, Texas, for brine storage, and a pump station and pipeline to deliver the brine to the impoundment. Construction began in the fall of 1976 and the project was placed in operation in May 1987. Area VIII continues to exceed design specifications and currently controls over 168 tons of chlorides daily.

The Water Resources Development Act of 1986 (PL 99-662) required that a special panel evaluate the improvement in water quality downstream of Area VIII to determine its consistency with the water

quality assumed in the development of project benefits. A favorable report was submitted to the Assistance Secretary of the Army (Civil Works) and the Committee on Environment and Public Works of the Senate and the Committee on Public Works and Transportation of the House of Representatives in August of 1988. PL 99-662 authorizes 100% federal funding and construction of the remaining control features contingent upon the favorable evaluation of the panel.

Congress appropriated \$5 million in FY 1991, \$3 million in FY 1992, \$6 million in FY 1993, \$4 million in FY 1994 and \$16 million in FY 1995 which was in the President's Budget for the first time ever. These funds were to continue design and construction of Areas VI, VII, IX and X and the Crowell Brine Reservoir. Construction of part of the brine collection facilities (pump station and low flow dam) at Area X was initiated in September 1991 and is complete. Accelerated design of the remaining chloride control features was approved in FY 1994 to permit construction as additional funds become available.

Real estate acquisition for Area VI, VII, IX, and the Crowell Brine Reservoir was scheduled to begin in FY 1993, but was postponed pending the outcome of the economic re-evaluation report ordered by the Assistant Secretary of the Army for Civil Works which was subsequently approved in November 1993 and further instructed the Corps of Engineers to complete all remaining areas of the project.

As part of the process to complete a Supplemental Environmental Impact Statement (SEIS) USFWS objected to the project in August 1994. This was a surprise to the Corps of Engineers since they had been coordinating with USFWS since 1991 and there was no indication they would deliver a negative opinion. This has stopped all construction work and effectively delayed the project by one year even though the Corps is continuing with design and land acquisition.

We ask that you continue to support this project and question the validity of the issues in which the USFWS bases their objection. We request your continued support to get this critical project back into the construction phase as soon as possible.

BANK STABILIZATION ON THE RED RIVER

RED RIVER LEVEES AND BANK STABILIZATION BELOW DENISON DAM

Red River Levees and Bank Stabilization Below Denison Dam is the authorization for constructing levees, flood control structures and bank stabilization below Denison Dam. The facilities constructed under this authorization are the first lines of flood protection for the Red River Valley and its citizens. Accelerated and new caving of the river banks of the Red River continue to endanger existing flood control structures and levees as well as valuable agricultural lands, highways, railroads, utilities, home and other valuable resources and improvements within the Red River Valley.

A systematic program of bank stabilization and other flood control measures can prevent these disastrous losses that are presently occurring.

Because of the construction of the Red River Waterway Project, a dangerous tendency has developed to de-emphasize construction of flood control and bank stabilization works under the Red River Levees and Bank Stabilization program. This tendency should be halted and reversed least the impression be created that the program is no longer needed or has been completed. Following the disastrous flood of May 1990, there can be no doubt of the

importance of properly maintained levees and of bank stabilization. All areas not protected by properly maintained levees were flooded and the only protection from enormous bank caving was where revetment projects have been constructed by the Corps.

The Red River Levees and Bank Stabilization Below Denison Dam Project is the only comprehensive flood control program on the Red River containing authorization for construction of a variety of flood control measures, levees and other flood control works. Some of the projects planned in the original authorization project have not been completed and these must be constructed in order for the citizens of the Red River to derive necessary flood protection.

Only minimal funds have been appropriated by Congress for the Red River Levees and Stabilization Below Denison Dam in recent years. Bank caving on the Red River has progressed in several locations to a critical state. Railroads, major public highways, levees and other flood control works are threatened, and unless action is taken in the near future, these facilities will be destroyed, endangering lives and property of the citizens of the Red River Valley.

Another example of flood control work needed is levee reshaping along the main stem of Red River in the state of Arkansas. Many of these levee sections were severely tested by the May 1990 flood, and it is apparent that reshaping is needed to increase their integrity, substantially reduce maintenance costs, and provide additional structural strength at appropriate elevations needed to protect citizens, agricultural land and transportation systems. The Corps has completed an engineering study of the Levees on the Red River from Index, AR to the Louisiana State line to establish and prioritize levee locations that have deficient grades, slopes and crown. This report included the recommendations with construction costs for all identified areas. Any funds not expended for the engineering study should be applied to the highest priority area to develop contracts and construction plans and drawings. The first phase of construction on the Miller County Levee System was completed in 1994.

In summary, it is imperative that Red River Levees and Bank Stabilization Below Denison Dam continue as authorized by Congress and that adequate funding be appropriated to accomplish the construction of this needed protection. The Red River Valley Association recommends that \$3.3 million be appropriated for this project in FY96.

EMERGENCY BANK PROTECTION

Although Federal projects have been authorized for flood control and navigation, many active caving banks cannot be stabilized because they are not yet sufficiently advanced or not included in earlier authorizations. The result is continuing, rampant destruction of valuable lands, threatening vital flood control facilities and endangering high-cost improvements such as bridges, pipelines, highways railroads, utilities, cities and towns.

It is urgent that adequate funding of the item "Emergency Bank Protection" be continued to construct bank stabilization work as early as possible in the most critical locations instead of waiting several more years and experiencing the loss of millions of dollars due to damages. Further, continued neglect of these caving banks will substantially worsen alignment of the River, making future navigation realignment and stabilization much more costly and difficult. Many presently caving banks have an existing alignment that is usable for the navigation channel and should be preserved now.

In view of the critical need for immediate bank stabilization at many locations along the river, and the great unnecessary losses to caving activity which have been suffered by the people of the Red River Valley in the past and which can be expected to continue in the absence of immediate stabilization construction, the Red River Valley Association requests that the Congress direct the Corps of Engineers to expend \$14.2 million in FY96 for Red River Emergency Bank Protection for construction. See Section XI, Arkansas Projects and Section XII Louisiana Projects.

BANK STABILIZATION - INDEX, ARKANSAS TO DENISON DAM

Widely fluctuating stages and high flows during the past several years have caused sharp increases in bank caving along the Red River from Index, AR to Denison Dam. This accelerated bank caving has caused the loss of valuable, vital improvements and non-replaceable prime agricultural lands. Flood control structures and levees which protect the Valley from disastrous floods are also endangered. These disastrous losses can be stopped by a systematic program of bank stabilization. Progressive construction of such a program is absolutely essential to the safety growth and well-being of the Red River Valley. To further delay this vitally needed protection would be short-sighted.

In view of the fact that construction of bank stabilization is so important to the citizens along the Red River boundary of Oklahoma and Texas we strongly recommend allowing the Corps of Engineers to proceed with a "demonstration project." There are new techniques which we believe are less expensive with better results than the traditional methods. One new technique is the underwater bendway weir.

We request that the Corps select three locations to use this technique and analyze their effectiveness to stop bank erosion as well as a comparison of cost benefits to traditional methods.

MISSISSIPPI RIVER AND TRIBUTARIES FLOOD CONTROL PROJECT

The Red River Valley Association endorses the Mississippi River and Tributaries Flood Control Project, including all of its features and components, and stresses the importance of aggressively completing all features, particularly as it relates to the Red River Basin and its improvements. Since the Red River is a major factor in the Mississippi River and Tributaries Flood Control Project, the Red River Valley Association endorses the flood control and navigation improvements of the MR&T Project and necessary appropriations for completion.

XI. ARKANSAS PROJECTS

APPROPRIATIONS RESOLUTIONS

RED RIVER LEVEES AND BANK STABILIZATION BELOW DENISON DAM

The Corps of Engineers indicated a few years ago that the levees along the main stem of the Red River in Arkansas required reshaping to conform to current design standards. Funding is needed to allow the Corps of Engineers to determine the deficiencies in the project levees in Arkansas from Index, Arkansas to the Louisiana State Line that are a matter of grave concern to the levee districts, and to continue detailed design for construction of remedial measures. The levees were severely tested by the May 1990 flood, and it is apparent that reshaping is needed to allow vehicular traffic on top of the levees for inspection during a flood and to allow more comprehensive maintenance to be accomplished by having a more

gentle slope on both sides of the levee which will also increase their integrity. This study began during fiscal year 1992 from a previous appropriation, and the Corps of Engineers let a contract from funds appropriated by the Congress for fiscal year 1994 to rehabilitate 2.4 miles of the levee beginning at the Arkansas-Texas boundary and extending downstream on the right descending bank of Red River. The Congress appropriated \$1.5 million to continue the project during fiscal year 1995. The Association urges that \$3.3 million be appropriated to continue the levee rehabilitation project in Arkansas for the construction of Item No. 5 and Item No. 9 during fiscal year 1996 and for the design of Item No. 6.

EMERGENCY BANK PROTECTION

The most important need for funding under this program in Arkansas is for the construction of Finn Revetment Phase II, Dickson Revetment and Canale Revetment. Continued neglect of the caving banks in Arkansas will substantially worsen alignment of the river, making future realignment for navigation and stabilization more costly and will erode the remaining works resulting in a waste of the original construction funds. Many caving banks still have an existing alignment that is usable for the navigation channel when it is authorized, and those banks should be preserved now.

These three Revetments should also be initiated to stop the loss of valuable farmland and to stop the transfer of large quantities of sediment to the navigation system downstream. These reaches of the river have been identified as having the most severe bank caving.

We urge that the \$12 million be appropriated in FY 96 for continued construction on the Dickson Revetment and Canale Revetment. In addition the Corps should be directed to initiate design and engineering on Finn Revetment Phase II and Hurricane Revetment.

McKINNEY BAYOU PROJECT

The Corps of Engineers will testify this Spring for funds to initiate a reconnaissance study of drainage in Miller County, Arkansas. The project is known as the McKinney Bayou Project as it is the principal drainage ditch in the County. Due to the thousand of acres of land cleared in Miller County during the past 25 years, the ditch is grossly inadequate to handle the drainage after heavy rains. The Red River Valley Association joins with the Arkansas Red River Commission to request \$450,000 be appropriated to allow this reconnaissance study during FY95.

LITTLE RIVER COUNTY STUDY

The Congress appropriated \$150,000.00 in FY92 and \$237,000 and \$400,000 in the ensuing fiscal years to conduct in Little River County a feasibility study. The feasibility study is to explore the modification of existing levees and the construction of new levees to avoid a possible repeat of the devastating flood in May of 1990. Funding of \$700,000 is needed to conduct a general reevaluation study of Little River County levees. The PED cost will be 100 percent federally funded. We request an additional \$1,000,000 to initiate construction for a total appropriation request in FY95 of \$1.7 million.

XII. LOUISIANA PROJECTSAPPROPRIATION RESOLUTIONSRED RIVER WATERWAY PROJECT NAVIGATION TO SHREVEPORT-BOSSIER CITY

The Red River Valley Association and Louisiana delegation are appreciative for the FY95 appropriations to complete Locks and Dams 4 and 5. Completion of navigation to Shreveport-Bossier City will significantly boost the economy throughout the river basin.

There is still work ahead of us to maintain and develop the navigation channel. We request that \$16,673,000 be appropriated in FY96 to continue construction on the following items in this project: Initiate construction on Shell Point structure and complete construction on St. Maurice Capout, Kadesh Capout, Coushatta Recreation Facility, Westdale Capout, Piermont Closure Repair, Shreveport/Bossier City Recreation Sites, MaDade Capout, Cecile Capout, Moss Capout, Curtis Capout and Elm Grove Capout.

It is also imperative that \$9,714,000 be appropriated to operate and maintain this waterway to insure reliable commercial navigation.

The Red River Valley Association encourages and supports the continuation of the Loggy Bayou mitigation project and initiation of the Bayou Bodcaw mitigation. These are important environmental projects for the overall system of the Red River.

Recognizing that recreation is an integral component of the Red River Waterway Project, the Red River Valley Association supports the development of recreational facilities as a part of the overall project construction. The Master Plan for Recreation is being re-evaluated by the Red River Waterway Commission of Louisiana and the Corps of Engineers. We support a quick completion of this re-evaluation, public comment, and then funding to construct the recommended sites.

RED RIVER BACKWATER AREA

The 1941 Flood Control Act authorized protection of additional areas in the Red River Backwater Area, where justifiable. A review in the late 1950s concluded that additional flood protection works were justified and authorized for the Larto Lake to Jonesville area, the Sicily Island area, the Below Red River area, and the Tensas-Cocodrie area. The Larto Lake to Jonesville area and the Tensas-Cocodrie area levee systems have been constructed and the Tensas-Cocodrie Pumping Station is completed. The Tensas-Cocodrie levees, were substantially completed in FY92. Construction of these projects should be completed at the earliest possible time to provide the protection determined to be justified, authorized and necessary by the U.S. Army Corps of Engineers capabilities. The Association supports the continued construction of the Sicily Island Area and requests appropriations of \$11,294,000.

ALOHA-RIGOLETTE PROJECT

This project, initially authorized in 1941 and constructed during the 1948-54 period, provides for the protection during high stages of the Red River of some 58,000 acres of alluvial land. Drainage from 340,000 acres that must flow through protected areas during lower river stages is disposed of by gravity flow through two 10 foot by 10 foot gated concrete drainage structures in the levee at the lower end of the project. This protected area has continued to develop agriculturally since construction of the project and now

additional gates are needed to allow adequate gravity drainage during low river stages. As a result, local interests requested that additional studies be made of the project, paying particular attention to the adequacy of the flood gate which has now been determined to be significantly inadequate for current conditions.

A feasibility study was completed by the New Orleans District, Corps of Engineers in June 1989. The Red River Valley Association urges that Congress appropriate the full capability of the Corps FY96 budget, \$2,379,000 to continue construction activities for the project on the Bayou Darrow flood gate, clearing and snagging of channels, the low flow structure and continued mitigation.

LOWER RED RIVER SOUTH BANK LEVEE

The South Bank Levee is a feature of the Mississippi River and Tributaries Flood Control Project and calls for improvement of the existing levee from the community of Hot Wells, LA to Moncla, LA. Construction procedures include: strengthening and enlarging substandard levee reaches, raising the levee to the designed grade, bank stabilization to protect the levee and other miscellaneous levee and roadway improvements. This levee is of extreme importance since it protects 1.25 million acres of valuable lands and improvements from flooding. This work should be completed in a timely and orderly manner; therefore, the Red River Valley Association endorses an adequate appropriation by Congress for FY95.

RED RIVER EMERGENCY BANK PROTECTION

Continued neglect of the caving banks, north of Shreveport/Bossier City will substantially worsen alignment of the river. This will increase the loss of prime farmlands and increase the transfer of large quantities of sediment to the navigation system downstream.

Funds were authorized in FY95 and the Corps has completed design for Cat Island Revetment. We request that \$2.2 million be appropriated for the construction of Cat Island Revetment.

In addition, the Red River Valley Association requests to continue design of repairs or a replacement structure for the Bayou Rapides Drainage structure and Pump Plant, as a feature of the MR&T Project, Lower Red River, South Bank Levee. The Association is aware of the deteriorated condition of the Bayou Rapides Drainage Structure and Pump Station which is located within the Lower Red River, South Bank Levee Project authorized by the Flood Control Act 15 May 1928; P. L. 391, 70th Congress. The project consists of incorporation and enlargement of existing flood control features along the South Bank Levee alignment to provide protection to the area south and west of the Red River from Hot Wells to Moncla, including the City of Alexandria. This floodgate and pump station was constructed in 1935 along the alignment of the subject project levee to provide a control at the outlet of Bayou Rapides and to prevent flooding by Red River Backwater. Reviews by the U.S. Army Corps of Engineers; Louisiana Department of Transportation and Development; and the Red River, Atchafalaya and Bayou Boeuf Levee District determined that the structure has severe structural deterioration and obsolete pumping equipment. Failure during a project flood would be disastrous with regard to the loss of life as well as property. The structure location is adjacent to Rapides General Hospital and the downtown area of Alexandria. The Association urges Congress to direct the Secretary of the Army to continue design of a replacement for the Bayou Rapides Drainage Structure and Pump station with Operation and Maintenance Funds of \$577,000 as a major rehabilitation.

AUTHORIZATIONS AND/OR APPROPRIATIONS SUPPORTEDBAYOU COCODRIE AND TRIBUTARIES

This project was authorized in 1941 and provides a drainage outfall for a large area of central Louisiana, including 120 miles of drainage channel, three water control structures and a major drainage structure in the West Atchafalaya Basin Protection Levee. The upper 100 miles of the project extending from Rapides Island west of Alexandria, Rapides Parish, to the tow of Washington, St. Landry Parish, is known as the Bayou Boeuf-Cocodrie Diversion Channel. The lower 21 miles of this channel is known as Bayou Courtableau.

Most of the project was completed in 1952. Since that time, as a result of extensive developments throughout this intercept drainage area, stages in the main channel system have continued to rise and have exceeded the design water surface by several feet on a number of occasions. Under present conditions, widespread flooding of agricultural lands and extensive damages from flooding of residential areas occur and continues increasing with each passing year. There is a critical need for improvements to these drainage channels which are intercepted by construction of the Red River South Bank and West Atchafalaya Floodway Levees.

For the lower part of the project (Bayou Courtableau), advanced engineering and design were considered to be completed in 1980. It now appears that additional studies of this portion of the project are necessary. These additional studies will continue to delay construction of several P.L. 566 projects for drainage improvements in this area which have not been allowed to proceed because of inadequate outlet through Bayou Courtableau. The Red River Valley Association urges that the New Orleans District be provided the appropriations to complete the lower part of the project which still affects many of our P.L. 566 projects.

ATCHAFALAYA BASIN

The Atchafalaya Basin is a key element in the flood control plan for the Mississippi River and its Tributaries that directly involve the Red River Basin area. Flood control is the primary purpose of the Atchafalaya Basin and its capability must be maintained and improved. The Red River Valley Association opposes any plan for use of the Atchafalaya Basin which reduces its effectiveness for flood control. However, the Association does not oppose other uses of the Basin, provided that they do not interfere with or prevent its use for flood control purposes. The Association urges that the studies being made on the Atchafalaya Basin area be completed as soon as possible and construction of the necessary flood control works in the area be resumed at a funding level according to Corps of Engineer capabilities.

XIII. OKLAHOMA PROJECTSAPPROPRIATIONS RESOLUTIONSRED RIVER BASIN CHLORIDE CONTROL PROJECT

The Red River Basin Chloride Control Project is imperative in order to realize full utilization of surface water supplies in the states of Texas, Oklahoma, Louisiana and Arkansas. Presently, more than 1,000 miles of streams in the river basin are severely contaminated by natural brines. Consequently, water of the streams is not suitable for municipal and most industrial and agricultural

purposes. Large volumes of salt enter the streams from 15 natural sources, 10 of which are located in Texas. There exists an immediate need for good quality water within the Red River Basin.

Passage of the 1966 and 1970 Flood Control Acts (P.L. 89-789 and P.L. 91-611) authorized construction of measures to control the natural salt pollution from Areas VI, VII, VIII, IX, X, XIII, XIV and XV in the basin, subject to the provision that construction on the project could not be started until approved by the Secretary of the Army. Initiating of construction at Area VIII on the Wichita River, prior to the required approval by the Secretary of the Army, was authorized by the 1974 Water Resources Act. Construction at Area VIII, which includes the Truscott Brine Lake, was begun in February 1977. The Bateman Pump Station, pipeline and Truscott lake were put into operation in May of 1987.

Congress authorized construction of the entire Red River Chloride Control Project to control natural brine sources as a 100 percent federal project (P.L. 89-789 and P.L. 91-611). Subsequently, the components of the overall project were re-evaluated by the Corps of Engineers, at the request of Congress, and the results of the re-evaluation have been reported in the Corps' "Supplemental Data to Arkansas-Red Basin Chloride Control, Red River Basin Design Memorandum No. 25, General Design, Phase I-Plan Formulation", Texas, I and II, Department of the Army, Tulsa District Corps of Engineers, Oklahoma, November 1980. The re-evaluation reaffirmed both the economic and technical feasibility of this project. Subsequently, as authorized by P.L. 99-662, a panel was formed to assess the improvement in water quality downstream of Area VIII to determine its consistency with the water quality estimated in the development of project benefits.

The panel submitted its report to the Secretary of the Army and the Committee on Environmental and Public Works of the Senate and the Committee on Public Works and Transportation of the House of Representatives in August 1988. The panel determined the operation of the completed works in Area VIII were consistent with the project benefits projected by Design Memorandum No. 25, and continues to perform beyond design expectations.

Current appropriations have initiated reconstruction of the low flow dams and pump stations in Area VII and X, accelerated designs for the Crowell Brine Lake and brine detention reservoir, and pump stations and Salt Creek Lake in Area VI. Congress appropriated \$16,000,000 in FY95 for the Tulsa District COE to continue this work as well as initiation of final engineering and design at Areas VI, and XIII - XIV; however, construction activities have been stopped.

As part of the process to complete a Supplemental Environmental Impact Statement (SEIS) USFWS objected to the project in August 1994. This was a surprise to the Corps of Engineers since they have been coordinating with USFWS since 1991 and there was no indication they would deliver an opinion to object. This has stopped all construction work and effectively delayed the project by one year even though the Corps is continuing with design and land acquisition.

We ask that you continue to support this project and question the validity of the issues in which the USFWS bases their objection. We request your continued support to get this critical project back into the construction phase as soon as possible and appropriate \$200,000 for FY 96.

RED RIVER BANK STABILIZATION, INDEX ARKANSAS TO DENISON DAM

Bank caving is not only a serious problem between Shreveport, Louisiana, and Index, Arkansas, but it continues upstream between Index, Arkansas, and Denison Dam, Texas. The Congress has appropriated a total of \$1 million for the study of a comprehensive bank stabilization project in this reach of the river during the past three fiscal years and have not justified a project using conventional methods.

In view of the fact that construction of bank stabilization is so important to the citizens along the Red River boundary of Oklahoma and Texas we strongly recommend allowing the Corps of Engineers to proceed with a "demonstration project". There are new techniques which we believe are less expensive with better results than the traditional methods. One new technique is the underwater bendway weirs.

We request that the Corps select three locations to use this technique and analyze their effectiveness to stop bank erosion as well as a comparison of cost benefits to traditional methods. This Associations requests \$200,000 for the Corps to implement this Demonstration Project.

EMERGENCY BANK STABILIZATION

The major flooding which occurred along the Red River in May 1990 caused considerable bank erosion, and there is the danger that a number of buildings and major infrastructure improvements will be lost because of the resulting bank caving. Several of these situations have been made know to the Corps of Engineers (Tulsa District) and they are taking the steps necessary to determine what treatments are needed. The Authority for the COE to undertake this work is included in Section 14 of the Flood Control Act of 1946, although the President's FY92 budget does not provide funding for this work. The Red River Valley Association urges Congress to allocate the funds necessary to continue the work needed to control and stabilize these eroding banks which are endangering improvements, facilities and human life.

XIV. TEXAS PROJECTSAPPROPRIATIONS RESOLUTIONSRed River Basin Chloride Control Project

Significant environmental improvements and public benefits can be realized with continued construction of the Red River Basin Chloride Control Project in Texas and Oklahoma. The project will definitely improve the quality of water supplies available for all purposes, including municipal, industrial, agricultural and recreational uses in all four states.

The Chloride Project is authorized under Public Laws 89-789 and 91-611, and the project's technical and economical effectiveness has been successfully demonstrated as required by Section 1107 of Public Law 99-662. Operational portions of the project consistently exceed the design projections which declare realistic economical and environmental benefits for the nation and the public in the region of Texas, Oklahoma, Arkansas and Louisiana.

The 993 Economic Re-evaluation Report indicated the benefit-to-cost ratio (BCR) for the Red River Basin Chloride Project is 1.3:1 better return for the public benefit than similar public works projects.

The report was approved by the Assistant Secretary of the Army for Civil Works in November, 1993 and further instructed the Corps of Army Engineers to complete all remaining areas of the project. \$16.0 million was appropriated in FY95 to accelerate engineering design, real estate acquisition and initiate construction of the Crowell Brine Dam, Area VII and Area IX; to continue engineering design for Areas VI and XIII-XIV.

The Supplemental Final Environmental Impact Statement (SFEIS) was scheduled to be completed by the end of October 1994, with the advertisement of the contract for the Crowell Brine Lake embankment, spillway and access road in November 1994. These dates were included in the project schedule supporting the FY95 budget request.

Due to a conflict with the USFWS, completion of the SFEIS was delayed pending further study to determine the extent of possible impacts to fish and wildlife, and their habitats along the Red River and Lake Texoma.

The USCOE is scheduled to complete the SFEIS in February 1996 and will then be prepared to proceed with the previous directives of the Secretary of the Army to initiate construction of the Crowell Brine Dam and Areas VII and IX.

The project has \$14.3 million carryover from FY95 which is adequate to fulfill the Corps' capability for this fiscal year. However, we are requesting \$150,000 be added to the budget and the Corps capability to immediately begin ecological monitoring in the upper Red River Basin including Lake Texoma for the purpose of establishing firm baseline data as well as initiating the long term environmental monitoring.

The monitoring plan will insure that the impacts and effectiveness of the Chloride Control Project are within the expected limits and will not become detrimental to the environment or its ecosystems.

CYPRESS VALLEY WATERSHED PROJECTS

The Red River Valley Association is supportive of initiatives for sustainable development through water resource projects. The Cypress Valley Watershed Management Study is an important project for Texas and this study addresses both the environmental and economic concerns. The Association supports this project at the level of capability as requested by the Corps of Engineers.

Once a booming port facility into the late 1890's the Port of Jefferson, Texas should be restored for its historic and tourist value. It is important that the funds required by the Ft Worth District, Corps of Engineers, to complete the Section 107 study be appropriated in the FY96 budget.

BOWIE COUNTY LEVEE

Major flooding along the Red River in May 1990 severely tested the integrity of the Bowie County Levee located along the right bank of the Red River north of Texarkana, Texas. Had it not been for emergency measures taken by the U.S. Army Corps of Engineers and local interests, the levee would have been destroyed during the flood. It is the opinion of the Corps that the levee would fail if subjected to another flood of the magnitude encountered in May 1990. Replacement or restoration of the levee is necessary to protect approximately 7,000 acres of prime agricultural land as well as residential and farm structures. A reconnaissance study of the Bowie County Levee is currently underway by the Corps to determine if a feasibility study would be in the federal interest. The Red River Valley Association requests the Tulsa District, Corps

of Engineers move quickly to complete this study and proceed immediately into a feasibility study, towards construction. \$600,000 was appropriated in FY95 to initiate design and construction efforts. We request \$900,000 to continue design and construction. The need for this project is great and must be accomplished.

McGRATH CREEK PROJECT

McGrath Creek is a tributary stream to Holliday Creek, and has a highly urbanized 5.6 square mile drainage area located in the heart of the City of Wichita Falls. On May 12 and 13 of 1982, a flood occurred which resulted in flood damage in the amount of 21.5 million dollars. Floods have reoccurred on the average of twice per year with annualized damage of approximately 1.6 million dollars each and every year. In 1986, floods in the Wichita Falls region resulted in two fatalities, one being at the juncture of Holliday Creek and McGrath Creek.

The City of Wichita Falls supports the construction of the \$12,100,000 McGrath Creek Flood Control facility, and entered into a cost-sharing agreement with the federal government for the local match of 25%. Final plans and specifications have been completed by the Corps of Engineers. The Red River Valley Association strongly supports the new start construction schedule of June 1996 and requests that \$110,000 be appropriated in FY96 to award construction contracts.

COOPER LAKE AND CHANNELS

The Cooper Lake and Channels Project was authorized by the 84th Congress on August 3, 1955, for the construction, control, recreation and water supply benefits to the citizens of the area and the nation. The Corps of engineers and three local entities, Sulphur River Municipal Water District, North Texas Municipal Water District and the City of Irving, have been attempting to build this project since its authorization. The project experienced a delay in 1978 by litigation to modify the Environmental Impact Statement, and that litigation was resolved. The Corps has substantially completed this project except for recreation and land mitigation. The Red River Valley Association recommends that the Congress continue funding the project in the amount of \$8.25 million in FY95 for continued construction and channels. In addition to the \$806,000 scheduled for operation and Maintenance funds are requested to construct the established shoreline erosion protection plan at the full Corps capability.

LAKE WICHITA/HOLLIDAY CREEK - WICHITA FALLS, TX

The Lake Wichita/Holliday Creek Project is in the final construction phase. This flood control project has been cost-shared with the City of Wichita Falls. With the first two phases completed, it has already proven cost effective by saving millions of dollars due to yearly flooding of the highly urbanized area with a carryover of \$1.7 million the Red River Valley Association does not request funds in FY96 to complete this construction.

RED RIVER BANK STABILIZATION, INDEX, ARKANSAS TO DENISON DAM

Bank caving is not only a serious problem between Shreveport, Louisiana, and Index, Arkansas, but it continues upstream between Index, Arkansas, and Denison Dam, Texas. The Congress has appropriated money for the study of the comprehensive bank stabilization project in this reach of the river during the past three fiscal years and have not justified a project using conventional methods.

In view of the fact that construction of bank stabilization is so important to the citizens along the Red River boundary of Oklahoma and Texas we strongly recommend allowing the Corps of Engineers to proceed with a "demonstration project". There are new techniques which we believe are less expensive with better results than the traditional methods. One new technique is the underwater bendway weirs.

We request that the Corps select these locations to use this technique and analyze their effectiveness to stop bank erosion as well as a comparison of cost benefits to traditional methods. This Association request \$200,000 for the Corps to implement demonstration project.

FEDERAL LEGISLATION AND POLICIES

NON-FEDERAL COST SHARING

The Water Resources Omnibus Bill was signed into law by President Reagan on November 17, 1986. Non-federal cost share provisions set forth in this important piece of legislation include:

- Flood Control -- 25-50%, with a minimum of 5% cash up-front during construction.
- Hydropower -- 100% reimbursable.
- M & I Water Supply -- 100% up-front during construction or reimbursable with interest.
- Agriculture -- 35% up-front or reimbursable.
- Recreation --- 50% up-front or reimbursable.
- Fish and Wildlife Enhancement --- 0% for national benefits; 25% up-front or reimbursable if benefits are local.
- Feasibility Level Studies -- 50% during the course of the study, with a minimum of 25% in cash -- up to 25% may be provided in-kind. (Excludes inland navigation studies involving dams, locks and channels).

Even though these and other cost-sharing provisions are generally outlined in the Omnibus Bill, there still remains substantial leeway for interpretation and formulation of guidelines. The Red River Valley Association highly recommends that the federal government solicit state and local input towards implementation of equitable and realistic cost-sharing guidelines.

NATIONAL ENVIRONMENTAL POLICY ACT

While recognizing the need and intent of the Congress in passing the National Environmental Policy Act of 1969, the Red River Valley Association also believes that the interpretation of this act has caused unnecessary economic hardship to the general public. The delay in start of projects beneficial to the general goodwill causes the real cost of the projects to increase significantly, often to the point that they no longer are economically beneficial.

The Red River Valley Association request Congress to revise this Act to:

1. Streamline Administration procedures under the Act to speed up the time for completion and review of an Environmental Impact Statement in a Federal project.
2. Recognize Man as a part of the environment and require that the effects upon Man be taken into account in the preparation and analysis of an Environmental Impact Statement.
3. Require that any person, association or other entity contesting the adequacy of the Administration procedures in preparation and/or review of Environmental Impact Statements be required to post bond in evidence of financial responsibility to reimburse the constructing agency for cost of delay in the event that the Environmental Impact Statement and/or procedure appealed is found to be adequate, if not otherwise provided by existing law.

The membership of the Red River Valley Association is concerned about unwarranted delays that add additional cost to the Red River Basin projects resulting in severe hardships on the citizens of the Red River Basin. The membership urges that Congress direct public officials and agencies to proceed with sound long-range development of the Red River Basin and its resources for the benefit of Arkansas, Louisiana, Oklahoma and Texas.

RIGHTS-OF-WAY RESPONSIBILITIES

The Flood Control Act of 1946 provided for enlargement of existing levees and construction of certain authorized levees on Red River below Denison Dam. Language in the Act requires local interests to be responsible for all lands, easements and/or rights-of-way required for construction of the improvements. Levee districts and local governing bodies have found that the number of enlargements, setbacks, and berms have progressively increased and rights-of-way costs have sharply increased, particularly in the past 10 years. Financial burdens resulting from increased costs for rights-of-way have steadily depleted limited revenues and funds of levee districts and local public bodies throughout the Basin area. The impact is so great that presently there are serious monetary problems and realistic doubt as to the abilities of various levee districts to continue to meet financial obligations.

The requirement of local interest to furnish all rights-of-way is not consistent with Congressional policy and is not compatible with other major river basin projects for flood control. It is obvious that modifications are drastically needed to correct these inadequacies.

The Red River Valley Association recommends Congress amend the 1946 Flood Control Act to permit Federal reimbursements to levee district and local governing bodies for fair market value of lands taken for all flood control purposes, including construction of new levees, levee setbacks, levee enlargement, levee turnovers, berms and cutoffs as necessary. Such modification is required at an early time to help relieve local levee districts and governing bodies of an extreme financial burden, and to assure progressive advancement of the flood control program in the Basin.

UNIFORM RELOCATION ASSISTANCE ACT

The Red River Basin Levee Districts and the Red River Waterway Commission are experiencing costs in the construction of navigation systems and construction and operation of flood control systems. The tax base of the basin lands is not capable of supporting

additional tax loads to fund the relocation costs associated with levee setbacks, flood control works and navigation projects.

The Federal Government through Public Law 91-646, known as the Uniform Relocation Assistance Act, provides that these relocation costs are the responsibility of and must be borne by local interests. The requirements and guidelines establish in this Act are such as to be extremely costly.

The Red River Valley Association requests the Congress to amend the Federal Uniform Relocation Assistance Act to provide for Federal payment of all such costs related to the construction of flood control and navigation projects in the Red River Basin of Arkansas, Louisiana, Oklahoma and Texas.

MAINTENANCE OF CHANNEL STABILIZATION WORKS

Past experience on the Red River and many other river projects has shown conclusively that maintenance of channel stabilization works by local interests is impractical. Rapid changes in river conditions and alignment, such as occur frequently on Red River, demands drastic extensions and revisions of existing protective works, and, occasionally, required changes are so radical that relocations are necessary. Experienced personnel, special equipment and certain materials are not normally available from local interests when needed, and the costs of these items exceed the financial capabilities of local levee districts.

The Red River Valley Association recommends to Congress that the Corps of Engineers be authorized and directed to maintain all bank stabilization and channel training work on Red River.

RED RIVER BASIN BENEFICIAL USES OF SALT WATER

On September 23, 1982, the U.S. House of Representatives Committee on Public Works and Transportation adopted a resolution directing the Corps of Engineers to determine the feasibility of salt gradient solar ponds and associated power generation equipment to collect and store solar energy and to generate electric power in the Red River Basin.

The inherent thermal storage capability of salt gradient solar ponds and the associated solar pond power plant concept offers a potentially viable alternative energy source which makes use of abundantly available natural resources (sun, salt, and land) and existing technology (i.e., heat exchanges and low temperature turbine generators). The necessary resources are readily available in the Red River Basin, particularly in western Texas and Oklahoma where there are identified sources of salt brine in economical quantities feasible of use in conjunction with solar ponds.

Limited scope reconnaissance studies performed in FY84 by the Tulsa District of the Corps of Engineers indicate a strong likelihood that a system of solar pond power plants can be economically feasible when constructed in conjunction with the chloride control measures in the Red River Basin. The report recommends expanded reconnaissance studies by made in the basin. The Red River Valley Association supports the investigation and requests that the stated FY89 capability level of the Corps of Engineers be appropriated at 100% Federal cost to continue these studies.

CHANGES DURING A FEDERAL STUDY

During the phase of completing the General Design Memorandum for an authorized project, local interests, levee boards and the state governmental offices of primary interest should be kept advised of

the study progress. In particular, any changes of the originally authorized plan as it may affect the project and/or the purpose of the project should be communicated to the local and state governments.

COST OF STORAGE FOR MUNICIPAL AND INDUSTRIAL WATER

Federal laws under which the multi-purpose Federal water projects were authorized, require purchases of any water supply or power to repay the Federal Government the full cost of providing such power or water, including interest on that cost at a rate the government paid to borrow long-term money in the year it built the project. This specific pricing mandate was established by the Water Supply Act of 1958.

Since 1976, the Secretary of Army has required construction costs escalated to present day levels using the Engineering News Record Construction Index effective at the beginning of the fiscal year in which the contract is approved, plus interest.

The Red River Valley Association requests Congress clarify the Secretary of Army's authority regarding water storage contracts and supports the concept of repayment to the Federal Government of original cost of construction plus interest only.

REGULATING LAND USE

In the past, proposals have been offered in the U.S. Congress and in some state legislatures to regulate and control the use of privately owned lands without compensation to the owner. These "land use" bills have been recognized by these legislative branches of government as contrary to the Fifth Amendment of the Constitution of the United States and soundly defeated each time they were offered. The Red River Valley Association opposes this type of national land use legislation.

MITIGATION LANDS

The present interpretation held by the U.S. Fish and Wildlife Service in relation to "mitigation lands" for water conservation projects greatly hinders the development of water supplies, flood control and bank stabilization projects. This interpretation requires taking large amounts of land out of private ownership for wildlife management purposes. This reduction in private land ownership represents a considerable economic and tax base loss. The Red River Valley Association, recognizing the need for a balance between the environmental aspects and people's needs, requests Congress to press for a revision of the present interpretation held by the U.S. Fish and Wildlife Service in order to make it compatible with Congressional intent and the needs of the people.

The Fish and Wildlife Service has undertaken efforts to utilize various alternative action programs such as fee acquisition, leasing, and easements for the purpose of a program to preserve bottom land habitats.

As part of this program, the Fish and Wildlife service has identified specific bottom land hardwood areas in Texas and Oklahoma and has placed these areas into priority categories, with many of the areas so identified in direct conflict with identified and proposed water supply reservoir sites.

The Fish and Wildlife Service's Program could have serious adverse effects on the ability of water supply agencies to meet the future water needs of the people within their respective regional water

supply areas, in that the program set a dangerous precedent that will permit anti-water development groups to use such tactics to preempt, or at least make very difficult, future water development projects. The Red River Valley Association, therefore, opposes the Fish and Wildlife Services' Bottom Land Hardwood Preservation Program.

SMALL WATERSHED PROGRAM

The Red River Valley Association has long recognized the value of the Small Watershed Program (Public Law 566) for protecting and improving the soil and water resources of our nation. Resource improvement projects in small watersheds of less than 250,000 acres, as provided in Public Law 566, gives rural and small town America an effective tool to span the gap between large watershed resources improvement projects of the Corps of Engineers and small, individual projects, carried out by landowners and operators. Public Law 566 has become well-known and respected program of federal, state and local partnership in resource improvement and protection of the Red River Valley. The Red River Valley Association supports the Small Watershed-Program and urges its effectiveness be increased through appropriate increase in funding and personnel.

FEDERAL RESERVOIRS POLICY

Federal reservoirs represent a combination of large economic investments and commitments of valuable natural resources which can make great contributions to the nation's economy. The Water Supply Act of 1958 provides a policy for non-Federal payment of water supply costs at federal reservoirs, both for participants at the time of project construction and for those who purchase reallocated storage at a later time. The payment required has been based on a simple principle: new water supply participants should pay for reallocated water supplies as they would have paid if they had been water supply participants when the project was built. This historic policy has achieved two goals: it has prevented "free riders" from receiving water supply benefits that they did not pay for, and it has facilitated reallocation of water to purposes with higher economic benefits.

In recent years, the Federal government has developed a new policy for payment of reallocated water supplies, charging the highest of the following: benefits or revenues foregone, replacement costs, or updated cost of storage in the Federal project. Under this new policy, the federal government has in several cases sought repayment of "updated costs" of storage among the new mix of project purposes. Non-Federal participants are asked to pay an inflated cost, increased to reflect present cost levels instead of original cost of construction, plus interest at the rate in effect at the time of reallocation, as opposed to the interest rate at the time of the project's construction. This new federal policy has been established by agency initiatives, rather than by Congressional action, and has not been applied consistently across the nation.

The Red River Valley Association requests Congress to enact legislation making it clear that the water supply repayment policy in the Water Supply Act of 1958 applies to reallocated water supply storage. The Red River Valley Association also requests that Congress further stipulate that in considering reallocation of storage space at federal reservoirs, federal agencies should strictly respect state water law and state water law management responsibilities, and in all studies and decisions related to reallocation, federal agencies should be required to consult with all affected states and follow applicable state laws on water rights and water quality.

XVI. SHREVEPORT/BOSSIER CITY FEDERAL PROJECT SUPPORT RESOLUTIONS**TRANSPORTATION****Red River Navigation**

ISSUE: The Red River Waterway Project has been completed from the Mississippi River to Shreveport/Bossier City, Louisiana. Over the next few years the navigation structures (Dykes & Revetments) need to be adjusted and some may be added. In addition, it will take approximately \$10 million per year to operate the system.

WHY IMPORTANT: For economic development to be fully realized we must operate the Red River in a reliable manner for industry to use it as a major transportation system. The navigation channel must be maintained at a 9 foot draft for safe use. If the channel is not properly maintained, industry will be reluctant to use the Red River.

CHAMBER POSITION: We thank you for the funds which completed the Red River Waterway Project and we're grateful for the funds in the President's budget - \$26.38 million. We request the continuation of funding to keep the Red River a reliable transportation system.

TRANSPORTATION**Red River Basin Chloride Control Project**

ISSUE: The first comprehensive study of the water quality of the Red River basin was initiated in 1957 by the U.S. Public Health Service under the authorization of the Federal Water Pollution Control Act. It was determined that ten natural salt source areas contribute a daily average of 3,600 tons of salt per day to the river. This renders downstream waters unusable for most purposes. Structural measures to help control the chloride pollution at 8 of the 10 sites were developed by the Tulsa District, Corps of Engineers. These plans led to Congressional authorization in the Flood Control Acts of 1962, 1966 and 1970. The first structure was completed in January 1964 and the second in Many 1987. The Water Resources Development Act of 1986 authorized the construction of the remaining sites.

Approximately one-third of the project cost has been expended to date. The total project is expected to cost \$303 million dollars.

Presently, the Tulsa District, Corps of Engineers, is preparing a Supplement to the Environmental Impact Statement (SEIS). Construction cannot continue until this is completed. Projected completion is February, 1996.

WHY

IMPORTANT: Natural mineral pollutants (primarily chlorides and sulfates) in the upper reaches of the Red River Basin are rendering downstream waters unusable for most purposes; therefore, the Red River Chloride Project is imperative in order to realize full utilization of the surface water supplies in Louisiana (as well as Texas, Oklahoma and Arkansas). More than 1,000 miles of streams in the river system are severely contaminated by naturally occurring brine and is not suitable for municipal, industrial or agricultural purposes.

The benefits of the Red River Basin Chloride Control Project will be improvements in water quality that will allow use for municipal, industrial, agricultural and recreational purposes. The added benefit will be the jobs created resulting from the implementation of the Chloride project.

CHAMBER

POSITION: We support this project in its present form and request completion of the SEIS by the project date of February, 1996. We support and encourage funding at the levels necessary to complete the remaining costs of the project by the year 2001.

TRANSPORTATION**Caddo-Bossier Parishes Port Commission****ISSUE:**

Development of the Caddo-Bossier Port Complex to access usage of the \$1.8 billion Red River Waterway Project and to take advantage of the \$68 million annual transportation savings projected by the United States Army Corps of Engineers. Local investment through December, 1995 is \$25,432,630 with private investments committed at \$45.5 million by three (3) companies. This year has already seen the announcement of a methanol/wood chip operation project at a private investment of over \$400 million with the creation of 400 new jobs. This is surpassing any conceivable idea of how our Port would evolve.

WHY**IMPORTANT:**

- ◆ Create 5,000 jobs coupled with up to 15,000 jobs in our communities.
- ◆ To compete in a global economy.
- ◆ Lower transportation costs (annual savings of \$68,831,000).
- ◆ Will generate up to \$500 million in private investment.
- ◆ I-49, I-20, I-69, Shreveport Regional Airport, three railroads, and with water transportation, a multi-transportation network will be in place.

CHAMBER**POSITION:**

Support the continuation of funding for Red River Waterway maintenance as presented in the FY 1996 Federal budget request for \$16,673,000 in order to insure navigation to the Port of Shreveport-Bossier and to have the Red River working for each area business and citizen.

SECTION XVII. CADDO/BOSSIER PORT SUPPORT RESOLUTION

On behalf of the citizens of Northwest Louisiana, the Caddo-Bossier Parishes Port Commission strongly urges the Congress of the United States to allocate the budgeted \$16,673,000 for the Red River Navigation Project for Fiscal Year 1996 in order to ensure the viability of the investment made over the last thirty years by the taxpayers of this country.

The Port of Shreveport-Bossier is readying for the official opening of the Red River later this spring and the beginning of barge traffic. It stands today as a longtime dream with a potential proving to exceed even the most optimistic projections. With local taxpayer investment guaranteed by a 1993 property tax, the Port's infrastructure is growing to meet the demands of a rapidly expanding customer base. Investment in the river port complex today stands at \$43,782,415. Investment by private business announced at this time, however, is more than TEN TIMES that amount, at \$445,500,000.

Progress toward our goal of becoming a premier multi-modal transportation system is excellent. Attached for your information is our General Mission Statement, highlights of our 1994 Accomplishments and our 1995 program of work.

Results of these efforts should provide a sense of pride to all members of Congress who believed in the Red River Navigation Project. You recognized the possible benefits, the job-generating capabilities, the advantageous cost benefit ratios. And these are becoming reality at The Port of Shreveport-Bossier.

Mission

- To provide multi-modal transportation service and infrastructure for domestic and international commerce and trade which will foster job creation, coupled with dollar investment, in and for Caddo and Bossier Parishes.

Governance

- The Port of Shreveport-Bossier is governed by the nine member Caddo-Bossier Port Commission. The Commission sets policies and regulates the traffic and commerce of the Port through Caddo and Bossier parishes. An eight member staff manages the Port's daily operations.

Location/Size of the Port

- The Port of Shreveport-Bossier owns (1) 2,000 acres located just south of Shreveport's city limits on the west side of Red River and bordered by Louisiana Highway 1 and a Union Pacific main line rail and (2) a 10-acre site in southwest Shreveport, the Ark-La-Tex Intermodal Center. Fifty acres of the Red River port site are devoted to riverfront activities.

Facilities

- 600 foot general cargo wharf (services two standard river barges simultaneously)
- 300 foot liquids wharf (services two standard river barges simultaneously)
- 24 foot wide primary access road off of LA Highway 1 (exceeds state highway load limits)
- Additional access road - in design
- On-dock heavy rail with side track - beginning construction
- 50 ton overhead bridge crane - in design
- 30,000 square foot transit shed - in design
- 4 acres concrete open storage - in design
- 30 ton bridge crane - being advertised for construction
- Intermodal Container Handling Facility has COFC/TOFC handling capabilities for container freight.

An Intermodal Port

- Committed to intermodalism (i.e. offering multiple modes of transporting cargo) from the beginning, the Port of Shreveport-Bossier gives shippers a complete range of transportation options - rail, truck and barge.

HIGHLIGHTS / 1994 ACCOMPLISHMENTS

1. Additional land acquired (almost 740 acres in two separate transactions) so that total port complex is approximately 2,000 acres. * Awarded \$1,000,000 FY 1994-95 Priority One LA Capital Outlay Budget for land purchase.
2. Two local customers announced relocation/expansion to the port complex, Specialty Oil/Quaker State and Atlas Processing, for a total new investment of \$29,500,000 and creation of at least 305 new jobs when their construction is completed in 1996.
3. Retained Port Operator/Marketer, Ryan-Walsh Company, headquartered in Mobile, Alabama. Began initial marketing phase in October.
4. PORT COMPLEX INFRASTRUCTURE AND FACILITIES:
 - A. Construction on general cargo wharf 400 lf extension continued.
 - B. Water and sewer design accomplished, loans guaranteed.
 - (1) Water - lines and storage tower
 - * Farmers Home Administration loan for \$12 million (40 year loan) (largest FmHA loan in Louisiana)
 - (2) Sewer
 - * LDEQ sewer loan for \$6.6 million (20 year loan)
 - C. Rail plans advanced. Contract for 15,000 lf to general cargo wharf awarded. Initiated design of second phase.
 - D. South access road plans advanced as well as plans for site specific roads.
 - E. Initiated development of 30,000 sf general cargo transit warehouse, initial hardstand (4 acres concrete open storage) and 50 T overhead bridge crane. * Principally funded FY 1994-95 LA DOTD Port Priority Construction and Development Program, award of \$2,520,000.
 - F. Administrative building plans initiated.
 - G. Plans for second liquid dock and additional outside storage initiated.
 - H. Plans for necessary dock equipment initiated: weigh scales, secondary crane truss, fabrication of 2nd crane (30 T).
5. Creation legislation modified by Louisiana Legislature to allow for borrowing against anticipated Caddo-Bossier property taxes. Received State Bond Commission approval for issuance of up to \$17,500,000 of bonds or Revenue Anticipation Notes.
6. Meeting held with cooperating agencies, standard operating procedures to include obtaining necessary operating and environmental permits, plans and inspections: Coast Guard, fire departments, Environmental Protection Agency, Sheriff/police, Corps of Engineers, Civil Defense.
7. Marketing efforts geared to local customers, plans initiated for expansion into hinterland markets. Initiated joint marketing efforts with Port of New Orleans targeted toward specific events and dates in 1995.
8. Ark-La-Tex Intermodal Center increased business (under direct operational control of the Board of Commissioners for the last 36 months).
9. Port brochure awarded "Certificate of Excellence" by 1994 American Economic Development Council in their national sales literature and promotional materials awards competition.
10. Work on Foreign Trade Zone #145 expansion continued.

**BOARD OF COMMISSIONERS
1995 PLAN OF ACTION**

1. Continue to pursue additional land potentials as need requirements transpire.
2. Build/acquire the necessary infrastructure, facilities, equipment necessary to move cargo and operate the port, continuing to follow adopted Infrastructure Plan through the Year 2000, adapting to the needs of customers as they occur.
(CY 1995 Capital Budget of \$47,959,894)
3. Develop port operations - operational circular and tariff charges, filling functional gaps not provided by terminal operator.
4. Expand tonnages for Year 1 operations.
5. Leverage local tax dollars.
6. Communicate activities to all citizens of Caddo and Bossier Parishes, including all general purpose governing authorities - continue minutes mail-out, initiate newsletter, publish ad.
7. Implement education of other transportation facilitators.
8. Implement Port Night marketing effort with Port of New Orleans to Dallas-Ft. Worth metroplex.
9. Continue participation in industry seminars, programs, events.
10. Continue interaction with local, state and federal authorities/agencies on legislative issues of importance.
11. Continue to improve intermodal capabilities - expand lift movement through commodity base diversification, initiate operational FTZ No. 145 as this zone is expanded to multi-locations.

**CITIZENS OF CADDO AND BOSSIER PARISHES
WILL SEE IN 1995**

1. **NEW CONSTRUCTION BEGINNING** at the Red River complex site **OF MORE THAN \$467 MILLION:**
 - construction of more than \$37 million in port assets,
 - construction by private business of more than \$430 million,
2. preparations by these private businesses to hire at least 720 new employees, and
3. initial operations of The Port of Shreveport-Bossier, moving its first customers' products by barge, truck and rail.

...thereby beginning the fulfillment of the CBPC Mission: to foster job creation, coupled with dollar investment, in and for Caddo and Bossier parishes.

PREPARED STATEMENT OF GOVERNOR EDWIN W. EDWARDS, BATON ROUGE,
LA

Summary of testimony of George E. Duffy, Chairman of the Governor's Task Force on Maritime Industry before the Senate Appropriations Subcommittee on Energy and Water Development on March 21, 1995 in reference to the following projects:

1. MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LA (CONSTRUCTION GENERAL)
We understand that sufficient funds are currently available to perform the FY 96 work on the saltwater intrusion mitigation plan and to perform design studies for a potential phase III fifty-five foot channel.
2. MISSISSIPPI RIVER, BATON ROUGE TO THE GULF, MAINTENANCE DREDGING
We recommend that Congress appropriate \$51,837,000 under O&M General in FY 96 for this work.
3. MISSISSIPPI RIVER-GULF OUTLET (MR-GO), LA, MAINTENANCE DREDGING
We recommend Congress appropriate \$12,054,000 in FY 96 for this project.
4. MISSISSIPPI RIVER-GULF OUTLET, LA, NEW SHIP LOCK
We recommend the Corps' full \$3,200,000 capability be provided in FY 96 construction funds proposed for the IH-NC New Ship Lock which are essential to the completion of reevaluation studies and initiation of detailed design studies.
5. MISSISSIPPI RIVER OUTLETS AT VENICE, LA
We recommend approval of \$1,645,000 for FY 96 for continued maintenance of these critical east-west navigation channels (Baptiste Collette and Grand and Tiger Pass).
6. INTRACOASTAL WATERWAY LOCKS, LA AND MR-GO BANK EROSION
We urge approval of GI funds in the amount of \$500,000 for FY 96 to address the need for and the timing of the replacement of Bayou Sorrel Lock on the GIWW, Morgan City-to-Port Allen alternate route. These funds, along with FY 95 carry-over funds in the amount of \$170,000, will be used to continue the feasibility study. We also urge the approval of \$25,000 in FY 96 funds, which along with \$340,000 in carry-over funds, will be used to continue the feasibility study of bank erosion along the Mississippi River-Gulf Outlet.
7. RED RIVER WATERWAY, MISSISSIPPI RIVER TO SHREVEPORT, LA
It is essential that completion of work already underway on this project -- ultimately to result in stimulating economic growth along the Red River Basin and increase cargo movements through the Port of New Orleans be funded. We recommend appropriation of \$16,673,000 for FY 96 to provide for substantial completion of this vital project and \$9,714,000 for operations and maintenance.

Mr. Chairman:

I am George E. Duffy, Chairman of the Governor's Task Force on Maritime Industry. I am here to testify on behalf of the ports on the lower Mississippi River and the maritime interests related thereto of the State of Louisiana. I am accompanied here at the table by Mr. Ron Brinson, President and Chief Executive Officer of the Board of Commissioners of the Port of New Orleans; Mr. Channing Hayden, President of the New Orleans Steamship Association; Captain John Levine, President of the Associated River Port Pilots; and Captain Mark Delesdernier, President of the Crescent River Port Pilots. In addition, I would like to ask other accompanying members of our delegation to stand.

The Mississippi River from the Gulf of Mexico to Mile 232 AHP is a 45-foot deep channel. The District Engineer of the U.S. Army Corps of Engineers, New Orleans District recently released the preliminary Corps' cargo tonnage figures for consolidated ports of South Louisiana for 1993. These ports are those that make up the deepwater ports on the lower Mississippi River from Baton Rouge to the Gulf of Mexico. A grand total of 399 millions tons of foreign and domestic waterborne commerce moved on this 232 miles of the Mississippi River in 1993. The deepening of the Mississippi River several years ago certainly was a factor in the deepwater ports on the lower Mississippi River improving their tonnage statistics. Thanks to Congress and the efforts of the New Orleans District, we feel that we now are in a more competitive position with the import/export bulk ports of the world. That position of strength in trade is essential to our nation's very well-being when one considers that foreign trade has been, and continues to this day, a sustaining force behind our country's growth. Ninety-one percent of our foreign merchandise trade by volume - and two-thirds of it by value -

moves in ships. With 20.8 percent of the nation's foreign waterborne commerce passing through the ports of Louisiana, the State of Louisiana has had a profound influence on employment, plant construction and access to worldwide markets.

We believe our Louisiana ports have a distinct advantage in access to foreign markets at competitive transportation costs. In order to handle the waterborne commerce, hundreds of barge lines serve our nation's inland waterways. In the lower Mississippi River region, over 100,000 barges pass through the Port of New Orleans annually, handling the waterborne commerce of the area. To carry the cargo between New Orleans and its trading partners throughout the world - serving, for example, more than 150 countries - approximately 2,500 vessels, operated by more than 75 steamship lines, call at the port in a year's time. These trading partners and percentages of trade are Europe (27.8 percent), Latin America (32.5 percent), Asia (30.7 percent) and Africa (7.3 percent).

It is undeniable that the New Orleans area plays a vital role in international commerce of this nation. In 1993, the lower Mississippi River (Baton Rouge to the Gulf of Mexico) handled 179.3 million tons of foreign waterborne commerce. Worth \$27.3 billion, this cargo represented nearly 18.1 percent of the nation's international waterborne trade. Bulk cargo accounted for 94 percent of this volume, primarily the result of tremendous grain and animal feed exports and petroleum imports. More specifically, over 45.7 million tons of grain coming from 17 states and representing 49.1 percent of all U.S. grain exports entered the world market via the 10 grain elevators and midstream transfer capabilities on the lower Mississippi River. This same port complex received 55 million short tons of petroleum and petroleum products in 1993, approximately 13.9 percent of the U.S. waterborne imports of petroleum products.

Also in 1993, public and private facilities under the jurisdiction of the Board of Commissioners of the Port of New Orleans handled 47.8 million tons of foreign cargo worth \$11.7 billion (included in lower Mississippi River statistics). Of this amount, general cargo tonnage totalled 7.6 million tons (major commodities: iron and steel products, rice, paper products, coffee and crude rubber). Although the volume of bulk cargo statistically dwarfs the amount of general cargo handled, the significance of the port in the movement of general cargo should not be overlooked. The Port of New Orleans consistently ranks in the top seven general cargo ports in the country. Furthermore, per ton, general cargo is very valuable to the community as it produces a greater local economic benefit than does bulk cargo.

While the port's foreign market is worldwide, its domestic market is primarily mid-America, the heartland of the United States. This heartland region currently produces 60 percent of the nation's agricultural products, 1/2 of all of its manufactured goods, and 90 percent of the country's machinery and transportation equipment. Waterborne commerce from this region is projected to reach 800 million tons by the year 2000.

Essential to our national economy is the continued growth and development of the lower Mississippi River regional complex. Most major trading nations of the world have deep draft ports and are in the process of developing more. With the passage of the Water Resources Development Act of 1986, United States ports are on the way to becoming more competitive in the world marketplace.

By the end of December 1988, the Corps had completed the initial construction dredging of the 45-foot channel from the Gulf of Mexico to Mile 181 AHP, thereby capturing the majority of estimated benefits attributed to the deeper channel. In fact, nine of the ten active grain elevators and four floating grain elevators that serve the vast mid-American, agricultural hinterland are reasonably assured of a minimum safe channel depth of 45-feet. Remaining yet for total first phase completion of the project are the project mitigation features. We understand that funds are currently available for the Fiscal Year 1996 work. We urge continued support for this effort which is part of approximately \$15 million in payments to the State of Louisiana to construct a pipeline and pumping stations for delivering potable fresh water to communities affected by saltwater intrusion. The State of Louisiana signed the agreement in May, 1993 which relieves the Corps from the responsibility for barging fresh water to the parish every year. The Local Cooperation Agreement for phase two dredging of the river to 45 feet from Mile 181 to Mile 232 was signed in September, 1993 allowing construction to go forward. This important project was completed in December 1994. We urge the Corps to proceed with design studies for Phase III which will allow us to proceed with the further deepening of the river to the 55 foot authorized depth.

In 1993, the Port of Baton Rouge handled 85.1 million tons to retain its position as the fifth largest port in the nation. Most ports on the lower Mississippi River are dependent upon timely and adequate dredging of the Southwest Pass to provide access to the Gulf. Judging from past experiences with spring thaws bringing higher river stages and higher rates of siltation, we urge Congress to appropriate the Corps' full capability of \$51,837,000 under O&M General for maintenance of the 45-foot project channel which provides deep draft access to the deep draft ports on the lower Mississippi River from Baton Rouge to the Gulf. This funding includes monies for both dredging and repairs to foreshore dikes, marsh creation and bank nourishment.

We are equally concerned with maintaining adequate depths and channel widths in the Mississippi River-Gulf Outlet Channel. The MR-GO handles cargo volumes equivalent to all the general cargo moved via the Port of Mobile; moves as much general cargo as all other East Gulf Ports combined, excluding Mobile; is responsible for 86 percent of all container cargo in the State of Louisiana; and generates an annual economic impact of well over a billion dollars. We recommend the appropriation of the full Corps' capability of \$12,054,000 for Fiscal Year 1996 for this project. This will permit annual maintenance dredging. This project also provides deep draft access to the Port of New Orleans. Incidentally, in 1993 the 543 general cargo vessels calling on the MR-GO Tidewater facilities accounted for 37.3 percent of the general cargo tonnage handled over public facilities at the Port of New Orleans.

We recommend the Corps' full \$3,200,000 capability in Fiscal Year 1996 construction funds proposed for the IH-NC New Ship Lock which are essential to the completion of reevaluation studies and initiation of detailed design studies.

The operation and maintenance features of the Mississippi River Outlets at Venice, Louisiana are fundamental in providing safe and essential offshore support access to energy-related industries. In addition to routine traffic, Baptiste Collette Bayou is occasionally used by shallow draft vessels as an alternate route between the MR-GO and the Mississippi River. We strongly recommend approval of \$1,645,000 for the continued maintenance of these critical east-west navigation channels, Baptiste Collette and Grand and Tiger Pass.

We urge approval of GI funds in the amount of \$500,000 for FY 96 to address the need for and the timing of the replacement of Bayou Sorrel Lock on the GIWW, Morgan City-to-Port Allen alternate route. These funds, along with FY 95 carry-over funds in the amount of \$170,000, will be used to continue the feasibility study. We also urge the approval of \$25,000 in FY 96 funds, which along with \$340,000 in carry-over funds, will be used to continue the feasibility study of bank erosion along the Mississippi River-Gulf Outlet.

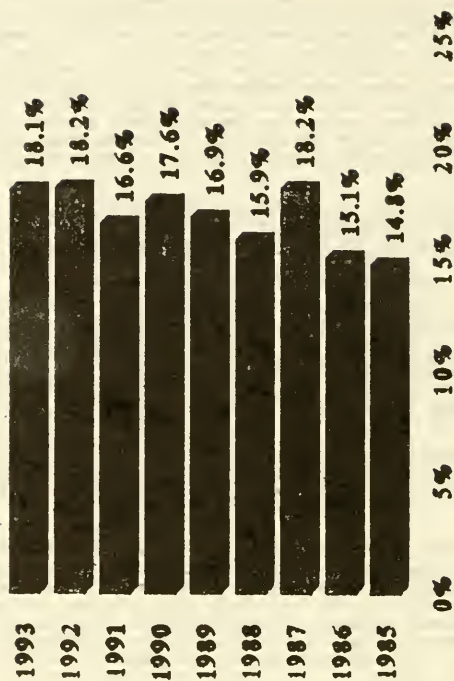
In closing, I would like to speak to one more project that deserves our attention; that is, the Red River Waterway, Mississippi River to Shreveport, Louisiana Project, providing for 236 miles of navigation improvements, 225 miles of channel stabilization works, and various recreational facilities. It is essential that completion of work already underway -- ultimately to result in stimulating economic growth along the Red River Basin and increase cargo movements through the deepwater ports on the Lower Mississippi River be funded. We recommend appropriation of \$16,673,000 of construction funds for Fiscal Year 1996 to provide for substantial completion of this vital project and \$9,714,000 for operations and maintenance be provided.

Mr. Chairman, this concludes my statement and I thank you.

I will be followed by Mr. Ron Brinson, president and Chief Executive Officer of the Port of New Orleans, Mr. Channing Hayden, President of the New Orleans Steamship Association; Captain John Levine, President of the Associated Branch Pilots; and Captain Mark Delesdernier, President of the Crescent River Port Pilots.

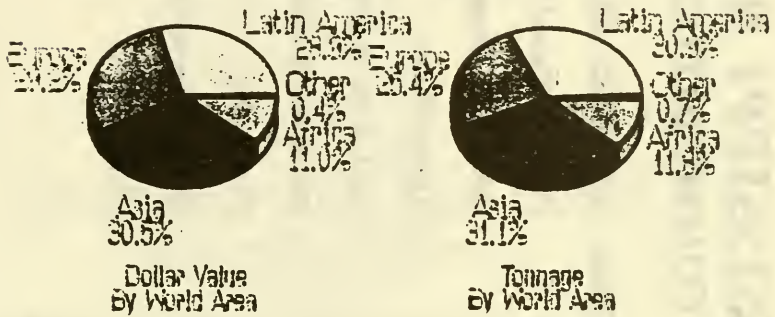
LOWER MISSISSIPPI RIVER FOREIGN WATERBORNE COMMERCE CALENDAR YEARS 1985 - 1993

Percent of Total U.S.



SOURCE: U.S. Dept. of Commerce

LOWER MISSISSIPPI RIVER FOREIGN WATERBORNE COMMERCE CALENDAR YEAR 1993



Dollar Value (millions)

Principal Countries:

Japan	\$ 3,116
Venezuela	1,700
Mexico	1,488
Netherlands	1,415
Saudi Arabia	1,058
All Others	12,514
Total	\$ 27,294

Tonnage (000's of short tons)

Principal Countries:

Japan	22,719
Venezuela	16,770
Mexico	14,055
Saudi Arabia	9,917
Netherlands	7,938
All Others	107,718
Total	179,117

SOURCE: U.S. Dept. of Commerce

LOWER MISSISSIPPI RIVER *

PRINCIPAL COMMODITIES 1993

766

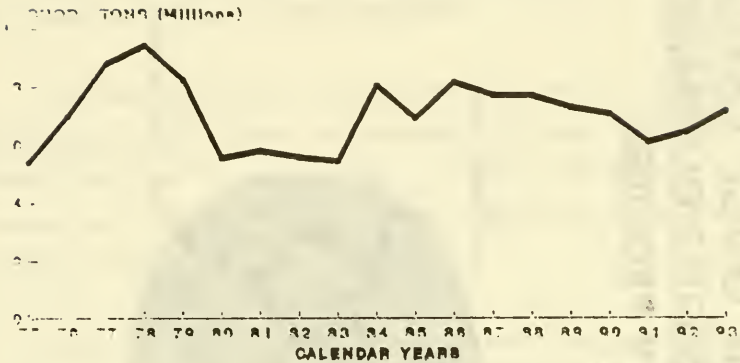
IMPORTS 79,531,437 Short Tons EXPORTS 99,585,495 Short Tons

Petroleum & Petroleum Products	54,989,357	Cereal & Cereal Prods.	45,667,566
Metalliferous Ores	8,266,865	Oilseeds & Oleaginous Fruit	16,158,900
Fertilizers	5,442,495	Animal Feeds	13,375,214
Iron and Steel	4,722,261	Coal, Coke & Briquettes	10,051,098
Gas, nat'l & manuf.	1,219,255	Petroleum & Petroleum Products	7,788,920
Chemicals	682,099	Chemicals	1,816,879
Nonferrous Metals	483,416	Animal/Vegetable Oils	1,170,097
All Others	3,725,689	All Others	3,556,821

* FOREIGN WATERBORNE COMMERCE

SOURCE: U.S. Dept. of Commerce

MISSISSIPPI RIVER GULF OUTLET
CALENDAR YEARS 1975 - 1993
BULK AND GENERAL CARGO TONNAGE



Source: U.S. Army Corps of Engineers

Mississippi River Gulf Outlet Facts and Comparisons

- Responsible for nearly three million tons of International general cargo.
- Represents almost 40% of the total general cargo of the Port of New Orleans.
- Handles cargo volumes equal to all the general cargo moved via the Port of Mobile.
- Responsible for 86% of all the container cargo in the State of Louisiana.
- Moves as much general cargo as all other East Gulf ports combined, excluding Mobile.

MISSISSIPPI RIVER GULF OUTLET 1993 TOTAL WATERBORNE COMMERCE COMMODITY PROFILE

CONTAINERS 34.4%

SAND & GRAVEL 7.4%

NONMETALLIC MINERALS 7.0%

PERK. ALLOY 4.8%

SA. LINER 2.0%
ALUMINUM CKE 2.0%

FERTILIZERS 1.8%

ALL OTHERS 45.2%



PREPARED STATEMENT OF CHANNING HAYDEN, PRESIDENT, NEW ORLEANS
STEAMSHIP ASSOCIATION

Mr. Chairman, Members of the Committee:

I'm Channing Hayden, President of the New Orleans Steamship Association. We support the statements of the Governor's Task Force, the Port of New Orleans and the Pilot groups. In the interest of time, I'll focus on a proposal to use budgeted Corps' funds more effectively.

The Corps should have authority to use these funds for other worthwhile projects in the District. We recommend authorizing the following work within the Corps' available funding.

- * To preserve wetlands and minimize future dredging cost, stabilize the north bank of the MRGO with rip-rap or similar hardened protection.

- * To create and enhance wetlands, mine sediment from Pass A Loutre and the Pilottown Anchorage. Each 800,000 cubic yards of material creates 115 acres of wetlands and enhances 256 more. In the process, much-needed Pilottown Anchorage at fog-prone Head of Passes would be dredged to accommodate the increasing number of deeply-laden ships attracted by the 45-foot channel.

- * To protect the channel's project dimensions from rapid shoaling during high water and prevent draft restrictions, advance-dredge and maintain a two-foot overdraft, or such other overdraft as the Corps determines most effective.

- * To maintain the deep-draft navigation channels more efficiently, conduct research studies on prototype dredging techniques. Experimental dredging wouldn't substitute for

routine dredging but allows for such things as testing dustpan dredges and new private equipment, such as the dredge BEACH-BUILDER, in Southwest Pass and the crossings above New Orleans.

* To ensure adequate flood protection, levee revetments have reduced the number and size of available deep-draft anchorages. To mitigate this encroachment, construct and maintain new anchorages to accommodate deep-draft ships.

I can't emphasize enough that these projects won't cost one extra federal penny. They'll be accomplished within the Corps' budget whenever resources are available. These authorizations should be effective for FY95 and all subsequent years that funding is available. We strongly urge your support for the more efficient use of Corps' funds within the New Orleans District.

That concludes my statement. Thank you for allowing me to appear today, and I'll be happy to answer questions.

Summary of testimony of Channing Hayden, President of the New Orleans Steamship Association, before the Senate Energy and Water Development Subcommittee on Appropriations in reference to the projects of public interest on the Lower Mississippi River from its mouth to Baton Rouge.

1. MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LOUISIANA (CONSTRUCTION GENERAL)
We recommend continuation of the work on the saltwater intrusion mitigation plan and the design studies for Phase III of the 55-foot channel. We understand that funding is available to perform both tasks.
2. CHANNEL STABILIZATION AND MAINTENANCE DREDGING OF SOUTHWEST PASS AND MAINTENANCE DREDGING OF THE MISSISSIPPI RIVER FROM BATON ROUGE TO THE GULF
We urge appropriation of \$51,837,000 under O&M General in FY96 to permit dredging and dike maintenance work.
3. THE MISSISSIPPI RIVER-GULF OUTLET MAINTENANCE DREDGING AND BANK EROSION
We urge the appropriation of \$12,054,000 (the Corps' full capability) to allow critical jetty repair and \$25,000, along with \$340,000 carried over from FY95, will be used to continue the feasibility phase of a bank erosion/riprap study.
4. MISSISSIPPI RIVER-GULF OUTLET, LOUISIANA, NEW SHIP LOCK
We recommend the Corps' full \$3,200,000 capability in FY96 construction funds proposed for the IH-NC New Ship Lock which are essential to the completion of local reevaluation studies and initiation of detailed design studies.

5. RED RIVER WATERWAY, MISSISSIPPI RIVER TO SHREVEPORT, LOUISIANA

It is essential that completion of work already underway on this project -- ultimately to result in stimulating economic growth along the Red River Basin and increase cargo movements through the Port of New Orleans -- be funded. We strongly recommend appropriation of \$16,673,000 for FY96 to provide for substantial completion of this vital project and \$9,714,000 for O&M.

Testimony of Channing Hayden, President of the New Orleans Steamship Association, before the Senate Energy and Water Development Subcommittee on Appropriations in reference to the projects of public interest on the Lower Mississippi River from its mouth to Baton Rouge.

Mr. Chairman:

My name is Channing Hayden. I am President of the New Orleans Steamship Association. Our membership, of some 60 steamship owners, operators, agents and stevedores operating on the Lower Mississippi River from the Gulf to Baton Rouge, represents hundreds of shipowners and thousands of ships in international commerce. We endorse the statements made by the Governor's Task Force on Maritime Industry, the Associated Branch Pilots, and the Crescent River Pilots. The projects we all support impact the nation in jobs and the country's ability to compete in world markets. They should be funded as noted in our summary.

Channel stabilization and maintenance dredging in Southwest Pass are critical to keep project draft. Project draft ensures the Mississippi River's deep-water ports will handle the country's foreign waterborne commerce in the most cost-effective way possible.

For years we have urged this Committee to provide funds to maintain project draft at Southwest Pass. You have responded, and your wisdom has benefitted the entire American heartland served by the Mississippi River System. Southwest Pass was greatly restricted throughout the '70s. From 1970 to 1975 the channel was at less than project draft 46 percent of the time. In 1973 and 1974 the channel was below the 40-foot project draft 70 percent of the time. During some periods, drafts were limited to 31 feet. Fortunately, those conditions have not recurred because of a combination of factors: your help and the constant vigilance of the Pilots, the Corps, and the maritime community. During the 1980s and 1990s, we have operated at or above project draft more often than not. The funding you provided was money well spent.

The repairs to the jetties and dikes and the Corps' ability to rapidly respond to shoaling have been instrumental in maintaining project. Five years ago we reported to you serious shoaling and groundings, lasting from February to May and costing our industry some \$28 million--plus an immeasurable loss of confidence in draft stability. Since that time, we have been generally at or above project draft.

The Pilots have taken advantage of tidal flows and other factors to recommend the maximum draft possible consistent with navigational safety. Four years ago we set a new record with draft recommendations of 49 feet for vessels under 100,000 deadweight tons and 48 feet for those over 100,000 deadweight tons, an eight- to nine-foot improvement over the old 40-foot project draft and four to five feet over the authorized project. Twelve inches to a large vessel with a loading capacity of 250 tons per inch is an additional 3,000 tons of cargo. Freight rates to the Far East are around \$15.00 per ton and about \$30.00 a ton to Europe. Using an average rate of \$22.50, each foot of draft represents an additional \$67,500 in vessel revenue, or \$540,000 for eight additional feet. It also represents additional sales of U.S. products and increased

competitiveness for those products on the world market. Industry's partnership with you has kept Mississippi River ports competitive. The current draft at Southwest Pass is 47 or 48 feet, depending on the size of the ship -- still above the authorized project.

The funds we are requesting for maintenance dredging and other works are essential for the Corps of Engineers to maintain a reliable channel and allow them to speedily respond to potential problems. This builds the confidence of the bulk trade in a reliable draft on the Mississippi River, which is critically important. Much of Louisiana's bulk trade is export agricultural products and coal. These export commodities are neither captive to Louisiana nor the United States if they can be shipped from competing countries at a consistently lower cost.

But the deeper the channel, the more important channel stabilization is. By ensuring adequate channel stabilization work, the maintenance cost of the deeper channel is minimized. If recurring maintenance dredging can be minimized by investing in stabilization, then the investment is cost effective. The faster the 45-foot project is stabilized, the faster and greater the benefits of reduced O&M costs will be realized.

Funds are also needed for dustpan dredges to work the crossings above New Orleans. These crossings control the draft to eight of our ten major grain elevators, plus many mid-stream loading facilities. This area caters to the bulk trade and must have a stable channel depth that coincides with the depth at Southwest Pass. Only two dredges in the world are available to maintain the deep-draft crossings between New Orleans and Baton Rouge. One to two more are needed to reliably maintain the new 45-foot channel above New Orleans.

The Corps of Engineers is studying the makeup of their "minimum fleet"--the number of dredges the Corps owns and operates. Corps-owned dredges working the Lower Mississippi River are the hopper dredges WHEELER and MACFARLAND, and the dustpan dredge JADWIN. The WHEELER and MACFARLAND provide a much-needed capacity and immediate response to keep Southwest Pass opened, especially when the river is abnormally high. To reduce government hopper dredges may drastically diminish the Corps' ability to maintain reliable project dimensions and adversely affect our country's standing in world bulk markets. The JADWIN is one of two dustpan dredges in the world capable of working the crossings between New Orleans and Baton Rouge. The loss of this dredge could close the upper river to deep-draft ships, causing serious economic repercussions.

For all of the above reasons, we request full funding for the mitigation features of the 45-foot project and for O&M General.

Last year the Corps completed the 45-foot deep channel to the Port of Baton Rouge. It eliminates past problems of different loading criteria for the ports on the Lower Mississippi River. Proper maintenance will now provide for draft uniformity and avoid confusion to foreign shippers and ocean carriers when negotiating charters. This will provide a better posture to promote U.S. export trade through Louisiana, and adequate federal maintenance funds to keep the channel open must be available.

The growth of the Port of New Orleans depends, in large measure, on the Port's container and other facilities on the Mississippi River-Gulf Outlet. This channel has been severely restricted in depth and width. The funds you have provided have allowed the Corps to improve the channel considerably. Despite the Corps' best efforts, the channel width is still limited primarily because of erosion. This seaway has a project depth of 36 feet. For safety reasons in this narrow channel, restrictions apply to

vessels with a draft of 30 feet or more. Such vessels cannot meet or pass in certain areas of this channel, causing delays to the tightly scheduled container traffic using the Mississippi River-Gulf Outlet. These specialty vessels serving the Port's facilities are becoming larger. This channel, with less than stable full project dimensions, causes problems for larger vessels, reducing our ability to grow with the trade.

To improve safety on the Mississippi River-Gulf Outlet, we request Congress appropriate the Corps' full capability for the Mississippi River-Gulf Outlet. In addition, to reduce or eliminate transit restrictions and delays, holding areas should be dredged so large ships can transit without closing the channel to other traffic. There is also the need to resolve the bank erosion problem in this channel. This could reduce cost over the long haul, enhance safety, and be environmentally beneficial. We urge approval of the Corps' full capability in GI funds for a Mississippi River-Gulf Outlet bank erosion/riprap study.

With facilities located on both the Mississippi River-Gulf Outlet and the Mississippi River, an adequate route between the two is essential for efficient transit between these facilities. The shortest route is an inefficient, antiquated lock built in the 1920s with a width of 75 feet and limited to a depth of 30 feet. Its maximum capacity has long been exceeded. The average waiting time for passage through the lock has increased from 8½ hours in 1985 to about 12 hours at present; however, I am personally aware of waiting time of more than a day in some instances.

A much larger ship lock is necessary to accommodate today's traffic. We urge that Congress provide the Corps' full capability for this project. This is important if this project is to be completed. Any delays are unthinkable since the new lock is long overdue.

The Red River Waterway, Mississippi River to Shreveport, Louisiana, Project is directly related to our Port. The continuation and completion of this work will stimulate the economy all along the Red River Basin with jobs and additional international trade. This stimulated trade will service the Port of Shreveport and the ports on the Lower Mississippi River, providing needed growth and benefitting the states of Louisiana, Texas, Oklahoma, and Arkansas, which are served through the Shreveport distribution center.

Thank you. I appreciate the opportunity to appear before you today.

PREPARED STATEMENT OF DONALD G. WALDON, ADMINISTRATOR,
TENNESSEE-TOMBIGBEE WATERWAY DEVELOPMENT AUTHORITY

Mr. Chairman,

I am Don Waldon, Administrator of the Tennessee-Tombigbee Waterway Development Authority. The Authority is a four-state interstate compact and is the regional sponsor of the Tenn-Tom Waterway.

As always, we appreciate the opportunity to present our recommendations for funding to your committee for its consideration.

This past January marked the 10th anniversary of the first commercial barge traffic to transit the waterway. Commerce has steadily grown each year since then. Although the waterway was out of service for 1 1/2 months last summer because of scheduled repairs and an accident caused by unseasonably heavy rains, tonnage grew by

5 percent last year, reaching nearly 8 million tons. Tenn-Tom continues to demonstrate its importance as a vital link in the Nation's inland waterway system.

Recreation is the other Congressionally authorized purpose of this project. Economic benefits generated from increased recreation and tourism have been phenomenal. Last year, alone, nearly 2.5 million visitor-days of use were recorded. According to a formula used by the National Park Service, the Corps estimates that these so-called leisure activities resulted in an annual increase in economic spending of about \$170 million. This has had a profound impact on the local and regional economy.

Although it is not a specifically authorized purpose of Tenn-Tom the waterway has helped to induce nearly \$1.7 billion of new and expanded industrial development since its completion.

It is important to point out that during the 2 years when the so-called Alabama sturgeon was under consideration for Federal protection as an endangered species, Tenn-Tom did not have a single serious industrial prospect. Since this cloud of uncertainty about the future viability of the waterway was lifted last December with the withdrawal of the sturgeon proposal, private investors' interest in the waterway corridor have been greatly rekindled. Currently two Fortune 500 companies are seriously considering locating in the waterway corridor involving substantial investments in manufacturing operations.

The Authority recognizes the very difficult task that lies ahead for you and this subcommittee to balance program needs while reducing total Federal spending. Within your program responsibilities, we strongly recommend that the operation and maintenance of completed projects such as Tenn-Tom, be given highest priority in the allocation of available funding. It would be "penny wise and pound foolish" not to fund these projects at a level that prevents physical deterioration and allows these investments to return benefits for generations to come.

We, therefore, respectfully request that you approve the President's budget request for Tenn-Tom. This level of funding is sufficient to properly maintain the waterway.

The budget request will also permit the completion of the acquisition of wildlife mitigation lands as authorized by the Congress.

In addition, continuation of those programs by Tennessee Valley Authority and Appalachian Regional Commission at the level recommended by the President's budget request are of great importance to our region. The Tenn-Tom corridor contains some of the most economically depressed counties in the Nation. These programs are of immense importance toward helping our people to improve their economic well-being and quality of life.

Thank you.

PREPARED STATEMENT OF JAN JONES, EXECUTIVE DIRECTOR, TENNESSEE
RIVER VALLEY ASSOCIATION

TESTIMONY SUMMARY

Mr. Chairman, Members of this Committee, I am Jan Jones, Executive Director of TRVA, a regional, economic development association. Appearing with me today is TRVA's president, David Nichols. David is a CPA and Mayor of Iuka, Mississippi.

This association supports the Tennessee Valley Authority's FY96 budget request. We humbly ask that TVA's funding be maintained at the

level recommended in the President's budget. We also want to ask your support for several specific projects under TVA's budget, as follows:

* PICKWICK CHANNEL MODIFICATION PROJECT - During FY95 TVA is scheduled to begin widening the narrow navigation channel below Pickwick Lock to reduce the number of barge groundings that are occurring in this narrow channel. Several of the groundings have involved hazardous cargoes. Fortunately, no spills have resulted. TVA's FY96 budget request includes \$5 million to complete the project.

* CHICKAMAUGA LOCK IMPROVEMENT PROJECT - TVA is nearing completion of a comprehensive review of alternatives to correct the navigation and structural problems at Chickamauga Lock. TVA's FY96 budget request includes \$1 million to initiate design on the selected alternative. The four alternatives being considered are: (1) permanently close the lock, (2) 18-month closure for major rehabilitation in 2003 and 2004, (3) interim repairs that would postpone a major rehabilitation until 2025, and (4) new lock construction.

* ENVIRONMENTAL RESEARCH CENTER (ERC) - We urge you to provide funding in TVA's FY96 budget for continuing the significant work of TVA's Environmental Research Center at Muscle Shoals, Alabama. The Center is finding economical ways to solve the environmental problems that threaten the region and the nation's air, water, and land resources.

We also request support the following project under the U.S. Army Corps of Engineers FY96 budget.

* KENTUCKY LOCK ADDITION PROJECT - The feasibility report has been approved for a new 110' x 1200' lock at Kentucky Dam. The next step is authorization in the 1995 Water Resources Development Act. We support a continuation of funding for the Kentucky Lock project in the U.S. Army Corps of Engineers FY96 budget.

Mr. Chairman, I appreciate having this opportunity to appear before this Committee and respectfully urge that you give thoughtful consideration to our request. Thank you.

TESTIMONY

Mr. Chairman, Members of the Committee, thank you for allowing me the opportunity to appear here today. I am Jan Jones, Executive Director of the Tennessee River Valley Association (TRVA), a regional, non-partisan economic development association representing the citizens of the seven states encompassing the Tennessee Valley. Appearing with me today is TRVA's President, David Nichols. David is a CPA and Mayor of Iuka, Mississippi.

Each year the TRVA membership selects several projects of significant economic impact potential for our unified support. It is with humble respect that we present these projects to this distinguished committee.

Mr. Chairman, this association supports the Tennessee Valley Authority's economic development programs and we request that TVA's FY96 funding be maintained at the level recommended in the President's budget. We also want to take this opportunity to testify on behalf of several specific projects under TVA's FY96 budget, as follows:

* PICKWICK CHANNEL MODIFICATION PROJECT

This project is necessary to remove an underwater rock ledge that exists in the sharp bend below Pickwick Lock and Dam. It's been described many times as an "environmental accident waiting to happen" and the U.S. Coast Guard warns of a growing safety problem.

The swiftness of the current, combined with sudden fluctuations of water levels and today's increased tow sizes have resulted in an increased number of barge groundings along this stretch of waterway. Since 1983, there have been approximately 30 groundings reported. The USCG experiences a continuous problem keeping channel marker buoys on station in this area. This creates an ever increasing possibility of a hazardous or toxic spill should a barge suffer hull damage upon grounding.

There is a clear responsibility to protect the environment by removing the rock ledge and its potential for spill accidents. Even one spill accident in Pickwick Channel could be costly, especially at a time when barge traffic there is increasing. Shippers say barge transportation is the safest, most economical transportation available today, especially for chemicals, coal, grains, wood products, petroleum, etc.

During FY95 TVA is scheduled to begin widening the narrow navigation channel below Pickwick Lock to reduce the number of barge groundings that are occurring in this narrow channel. Several of the groundings have involved hazardous cargos. Fortunately, no spills have resulted. TVA's fiscal year 1996 budget request includes \$5 million to complete the project.

* CHICKAMAUGA LOCK IMPROVEMENT PROJECT

Time is running out on deciding the future of Chickamauga Lock, near Chattanooga, TN. Completed in 1937, the old lock is showing signs of severe structural deterioration. It is plagued by concrete growth and needs constant repairs. To make matters worse, the lock is one of the smallest (60' by 360') on the Tennessee River. It can only accommodate one barge at a time while modern locks downstream can accommodate up to nine barges per lockage.

TVA is nearing completion of a comprehensive review of alternatives to correct the navigation and structural problems at Chickamauga Lock. TVA's fiscal year 1996 budget request includes \$1 million to initiate design on the selected alternative. The four alternatives being considered are:

1. Permanently close the lock.
2. 18-month closure for major rehabilitation in 2003 and 2004.
3. Interim repairs that would postpone a major rehabilitation until 2025.
4. New lock construction.

* TVA'S ENVIRONMENTAL RESEARCH CENTER

Mr. Chairman, we urge you to provide funding for continuing the significant work of TVA's Environmental Research Center at Muscle Shoals, Alabama. The Center is finding ways to solve environmental problems that threaten the region and nation's air, water, and land resources. We

recently visited the Center and was impressed with their work. They're about to introduce, for example, a new genetically-engineered microbe...or bug...that eats only PCB's. Can't you imagine the millions of dollars this new, low-cost way to clean up PCB's will save the nation each year? TVA has also come up with a new biofilter made of poultry litter and pine bark. This filter reduces the cost of removing toxic gases from a variety of manufacturing facilities by more than 50 percent. Again, this development offers savings to industry firms across the country. TVA is also working with NOAA, EPA, DOE, universities, and the private sector in measuring the ground-level ozone problem. They're doing this in the Nashville, Tennessee, area, but it has implications in cities where air quality is already threatened. The idea is to measure the problem and provide information to guide regulators in attacking the high-risk problems. This will help assure that money is spent on the significant health-risk problems.

These are only three of the significant things TVA is doing at the Center. I urge you to continue funding for this important work.

We also request the following under the U.S. Army Corps of Engineers FY96 budget.

*** KENTUCKY LOCK ADDITION PROJECT**

Situated near the mouth of the Tennessee River, Kentucky Lock provides the only economical waterway access from the Mississippi, Illinois, Missouri and Ohio Rivers to the Tennessee Valley region. Kentucky Lock also acts as the door to a backup system for the inland waterway. In times of drought, as in 1988, an alternate route to the lower Mississippi is available through Kentucky Lock to the Tennessee-Tombigbee Waterway and the Gulf of Mexico. This is economically important as well as beneficial to national defense.

Kentucky Lock's 600' chamber is too small to handle a modern 15-barge tow without two lockages. This greatly increases the processing time and further compounds the problem of congestion and gives Kentucky Lock one of the highest transit times in the inland waterways. A new 110' x 1200' lock chamber adjacent to the existing lock at Kentucky Dam is proposed. The project would create about 500 jobs during the peak seven years of construction and has a 2.0 to 1 benefit/cost ratio.

The Feasibility Report, approved June 1, 1992, by the Chief of Engineers, is at the Assistant Secretary of the Army for Civil Works office awaiting their recommendation to Congress for authorization. The next step is authorization in the 1995 Water Resources Development Act. Congress appropriated \$500,000 in FY93 for continued design and engineering. The ASA(CW) directed these funds by-expended for reanalysis of the project formulation. The FY94 Appropriations Act directed that \$2,000,000 be expended for design activities, hydraulic modeling and geotechnical

explorations. An additional \$2,000,000 was included in the FY95 Appropriation Act to continue these activities.

We support a continuation of funding for the Kentucky Lock Project in the U.S. Army Corps of Engineers FY96 budget.

Mr. Chairman, we appreciate the excellent work of this important Committee. It is an honor to have the opportunity to appear before you today and we respectfully urge that the Committee give thoughtful consideration to our requests. Thank you.

PREPARED STATEMENT OF R. BARRY PALMER, EXECUTIVE DIRECTOR, THE ASSOCIATION FOR THE DEVELOPMENT OF INLAND NAVIGATION IN AMERICA'S OHIO VALLEY

Mr. Chairman and Members of the Subcommittee:

I am Barry Palmer, Executive Director of DINAMO, the Association for the Development of Inland Navigation in America's Ohio Valley. DINAMO is a multi-state, membership based association of business and industry, labor, and state government leaders from the Ohio Valley states, whose singular purpose is to expedite the modernization of the lock and dam infrastructure on the Ohio River navigation system. The governors of Illinois, Indiana, Kentucky, Ohio, West Virginia, and Pennsylvania have appointed representatives on our Executive Committee and Board of Directors.

I am here before this distinguished subcommittee today to request funding of lock and dam modernization action in the Ohio Valley in accordance with the full capability of the US Army Corps of Engineers. The budget request, including the carryover of funds not spent in previous years, is \$171,222,000. We are requesting total funding of \$176,222,000. There are three objectives that need special attention: First, needed is an additional \$2 million and a "new construction start" for the McAlpine Lock Project; secondly, needed is funding of \$2.5 million for continued Pre-construction Engineering and Design of the Kentucky Lock Addition on the Tennessee River, KY; and third, needed is an additional \$1 million for the Ohio River Main Stem study.

Our request for funding of lock and dam modernization action in the Ohio Valley for Fiscal 1996 is as follows: (Note: these amounts include programmed unobligated carryover from FY 1995.)

Recommendations for Fiscal Year 1996

For the Robert C. Byrd Locks and Dam modification project, formerly the Gallipolis Locks on the Ohio River, OH/WV, \$10,000,000 in new funding, or \$14,316,000 total, for continued construction.

For the Winfield Lock Replacement on the Kanawha River, WV, \$11,840,000 in new funding, or \$75,710,000 total, for continued construction.

For the Olmsted Locks and Dam, replacing Locks and Dams 52 and 53 on the lower Ohio River, IL/KY, \$32,100,000 in new funding, or \$55,562,000 total, for continued construction.

For improvements to Monongahela River Locks and Dams 2, 3 and 4, PA, \$15,000,000 (no carryover) to continue construction.

For the McAlpine Lock Project on the Ohio River, IN/KY, \$3,487,000 in new funding, or \$4,117,000 total, to initiate construction activities.

For the **Marmet Lock** on the Kanawha River, WV, \$5,319,000 in new funding, or \$5,917,000 total, to continue pre-construction engineering and design.

For the **Kentucky Lock Addition** on the Tennessee River, KY, \$2,500,000 (no carryover) to continue pre-construction engineering and design.

For the **Ohio River Mainstem Study**, including Uniontown, Newburgh and Cannelton Locks and Dams, \$3,600,000 (no carryover) to continue planning.

You will note, Mr. Chairman, that we are requesting \$3.487 million in construction funding for the **McAlpine Lock Project**. A "new construction start" and the additional funding will allow the Corps of Engineers to continue engineering and design for the lock and bridge replacement, as well as award a contract for wharf improvements, a construction office, and operation and maintenance buildings relocation. These work items must be completed prior to the larger lock replacement construction scheduled to begin in FY 1998.

A new McAlpine Lock was authorized in the 1990 Water Resources Development Act. The plan calls for replacement of the inactive 56' x 360' lock and the old 110' x 600' lock with a new 110' x 1,200' lock, resulting in twin 110' x 1,200' locks at the project.

Present and future traffic needs dictate construction of an additional 1200' lock. In 1992 commercial traffic at McAlpine was 57.653 million tons and is projected to increase to 72 million tons by the year 2000 and 141.6 million tons by the year 2050. McAlpine is strategically located on the Ohio River between Pittsburgh, Pennsylvania -- America's largest inland port -- and the Mississippi River, gateway to the Gulf in New Orleans and the upper reaches of the Mississippi in Minneapolis/St. Paul. Any scheduled or unscheduled shutdown of the main lock and subsequent sustained operation of the auxiliary lock leads to substantial delays. For example, the main lock was closed for traffic for 35 days in June and October 1987. There were 723 tows delayed an average of 30 hours per tow, costing industry an estimated \$4.4 million. By the year 2000 this problem is expected to become even more severe as the auxiliary chamber will be relied upon to handle traffic levels that greatly exceed its capacity. These delays penalize Ohio River industry and commerce, and if not corrected will retard our region's competitive edge in a global economy.

DINAMO has been involved in the planning process of the Corps of Engineers for many years with respect to the McAlpine improvement project. We have particularly focused on the navigability and operational safety of the new lock, as well as the compatibility of the project with respect to future needs of facilities upstream and downstream. An impressive factor that compels strong support for the new 1,200' lock is the commonality of traffic that transits McAlpine and other locks. For example, nearly 70 percent of the traffic that transits McAlpine also travels through Locks and Dam 52, which will be replaced by the new Olmsted Locks and Dam. And more than 47 percent of the traffic through the Robert C. Byrd Locks and Dam (formerly Gallipolis) transits McAlpine.

The benefits of modern locks and dams at McAlpine are vital to the distribution of the Ohio Valley's commerce including coal, petroleum, chemicals, steel, aggregates and agricultural products. Twenty states ship or receive commerce through McAlpine. While the improvement is estimated to cost \$300 million, the average annual net benefits are 15.2 million, with a benefit to cost ratio of 1.8 to 1.

Mr. Chairman, we are also requesting \$2,500,000 for Pre-construction Engineering and Design (PED) on the **Kentucky Lock Addition**. The Administration's Budget Request contains no money for this project. It is imperative for the Tennessee River Valley and the region that this project proceed at full corps of Engineers capability. Until new works can be brought into service, continued growth in this region will be impeded by mounting congestion at the

inadequate, single 110' x 600' lock chamber at the Kentucky Lock. The Kentucky Lock is situated 22 miles above the mouth and is thus provides the only economical waterway access from the Mississippi, Illinois, Missouri and Ohio Rivers to the Tennessee River valley. The entire 652-mile valley is constrained by the Kentucky Lock.

Traffic on the Kentucky-Barkley system is projected to grow from 37.3 million tons in 1988 to 50.4 million tons by the year 2000. After extensive evaluations, the Nashville District, US Army Corps of Engineers, is recommending a new 110' x 1,200 lock constructed landward of the existing lock. The smaller chamber could then be used as an auxiliary chamber. The fully funded cost of this improvement is \$661 million with annual net economic benefits of \$26.5 million, and will have a benefit-to-cost ratio of 2.0 to 1.

Next Mr. Chairman we are requesting an additional \$1 million for the Ohio River Main Stem study, including the Uniontown, Newburgh, and Cannelton Locks and Dams, for total funding of \$3.6 million. This study already has developed highly promising innovative design concepts for extending existing 600 foot auxiliary locks on the Lower Ohio River to 1200 foot chambers at about one-third the cost of traditionally designed 1200 foot locks. Given the increase in both planned and unplanned maintenance outages, these design concepts will be important to the future navigation efficiency on the middle and upper Ohio River. The capability estimate will extend these innovative designs to the middle and upper Ohio River.

The economic structure of the Ohio River navigation system corridor has developed from the investment of the federal government in constructing, operating and maintaining our nation's lock and dam infrastructure. Inland waterways investment strategies have involved communities and governments and the private sector as partners in their own destinies. The navigation system has been the product of a joint venture in which the federal government is just one of the parties that makes it possible. Other partners in this joint venture build and maintain the ports and terminals, elevators, storage facilities, access roads, and the manufacturing, refining and other plants that provide jobs. None of these partners -- including the federal government -- could have done it alone.

Additionally the inland waterways regions of the nation are paying one-half of the cost of modernizing lock and dam structures from a fuel use tax. The tax is currently levied at a rate of 20 cents per gallon. These taxes are gathering in the Inland Waterways Trust Fund.

Waterways expenditures represent solid investments -- investments in people, investments in infrastructure, investments in America. The inland waterways are both a model and methodology for what works. It has been this nation's investment in inland navigation that has allowed the interior regions to compete with other regions on a more level playing field. For instance, the coal in the West Virginia mountains has always been there. But without transportation this coal is valueless. Transportation to market gives value to coal, ores, and raw materials. The less that transport to market costs, the more value it adds -- and vice-versa.

Commerce, like water, flows along the lines of least resistance. Production and industry have gravitated to the areas, and along the routes, of lowest costs. The industrial and agricultural development that has occurred along the inland waterway system of interior America has benefitted this Nation beyond measure.

Mr. Chairman, these three lock and dam projects, the McAlpine Lock project, the Kentucky Lock Addition, and the Ohio River Main Stem study, along with other regional lock and dam improvement projects, are crucial to the economy of the Ohio Valley. It is imperative that the funding levels outlined in the attached chart on page 5 are included in the FY 1996 Appropriations Act. We look forward to working with you closely in the future and thank you for the opportunity to be here today.

FY 1996 Funding of Ohio Valley Lock and Dam Modernization Projects

	FY 1995 Funding	Administration's FY 1996 Budget Request	Corps' FY 1996 Capability#
Construction			
Robert C. Byrd Locks & Dam Ohio River, OH/WV	\$ 23,000,000 *	\$ 14,316,000+	\$ 14,316,000
Grays Landing Lock & Dam Monongahela River, PA	\$ 16,970,000 *	\$ 0**	\$ 0
Point Marion Lock Monongahela River, PA	\$ 0 **	\$ 0	\$ 0
Winfield Lock Kanawha River, WV	\$ 89,000,000 *	\$ 75,710,000+	\$ 75,710,000
Olmsted Locks & Dam Ohio River, IL/KY	\$ 68,500,000 *	\$ 55,562,000+	\$ 55,562,000
Locks & Dams 2, 3, & 4 Monongahela River, PA	\$ 4,148,000	\$ 15,000,000	\$ 15,000,000
McAlpine Lock Ohio River, IN/KY	\$ -----	\$ 0	\$ 2,000,000#
General Investigations			
Pre-construction Engineering and Design			
McAlpine Lock Ohio River, IN/KY	\$ 3,126,000	\$ 2,117,000+	\$ 2,117,000
Locks & Dams 2, 3, & 4 Monongahela River, PA	\$ 3,852,000	\$ -----	\$ -----
Marmet Lock Kanawha River, WV	\$ 4,522,000	\$ 5,917,000+	\$ 5,917,000
Kentucky Lock Addition Tennessee River, KY	\$ 2,000,000	\$ 0	\$ 2,500,000#
Surveys			
Ohio River Main Stem Study Uniontown/Newburgh/Cannelton	\$ 2,800,000	\$ 2,600,000	\$ 3,600,000#
TOTALS:	\$217,918,000	\$171,222,000	\$176,722,000

* Included programmed unobligated carryover scheduled to be expended in FY 1995. Budget for FY 1995 was \$13,000,000 at Robert C. Byrd; \$51,000,000 at Winfield; \$6,970,000 at Grays Landing; and \$26,000,000 at Olmsted.

** The Point Marion Lock is complete; Grays Landing will be completed in FY 1995.

+ Includes programmed unobligated carryover scheduled to be expended in FY 1996. Budget amounts for these projects are \$10,000,000 at Robert C. Byrd; \$11,840,000 at Winfield; \$32,100,000 at Olmsted; \$1,487,000 at McAlpine; and \$5,319,000 at Marmet.

"Capability" is a Corps of Engineers term representing a level of work that could be achieved without financial restraints. Corps of Engineers public documents indicate that funding in line with capability is applicable to Ohio River Navigation System modernization projects. In short, the McAlpine Lock project is ready for construction: an additional \$2 million is needed to construct wharf improvements, a construction office, and operation and maintenance building relocation, in addition to continue engineering and design of the new lock and bridge replacement. In the case of the Kentucky Lock Addition project, no monies were budgeted for Pre-construction Engineering and Design. \$2.5 million is needed to continue PED. On the Ohio River Main Stem study, an additional \$1 million above the budgeted level would extend innovative design concepts on the middle and upper Ohio River.

PREPARED STATEMENT OF THE HONORABLE W. W. HERENTON, MAYOR,
CITY OF MEMPHIS, TN

Mr. Chairman and members of the Subcommittee, thank you for the opportunity to submit written testimony to the record of the Senate Energy & Water Development Appropriations Subcommittee as you begin work on your FY1996 Appropriations legislation.

I would like to share with you an initiative that the City of Memphis is undertaking as a result of my Urban Agenda which will work to bring about the rebirth of Memphis.

Founded in 1819 along the lower Mississippi River, the City of Memphis was undoubtedly favored by its early settlers for the advantages of its site. Future growth and urbanizing along the river bluff at the gateway to the Mississippi Delta positioned Memphis to become a major commerce and distribution center.

In the early years, Memphis was also an agricultural center given the City's strategic riverfront location. However, as railroads, highways and air travel began to replace the river as primary transportation modes, Memphis was able to incorporate these modes into its distribution industry. But at the same time these modes contributed to the economic growth of the City, they allowed many middle-class residents of both African-American and European descent to move outside the City, giving rise to significant suburban growth.

Mr. Chairman, today Memphis is the major metropolitan center of the mid-south region. Located in Shelby County, Tennessee, both the county and city governments provide services to residents of the City of Memphis. It is an area with a relatively low cost of living as well as reasonable land and construction costs. The location near Memphis of several distribution facilities for nationally-based companies has kept unemployment rates low and protected Memphis from some of the economic difficulties created by the recession of the early 1990's.

In the City's modern history, the assassination of Dr. Martin Luther King in Memphis in April 1968 was a formative experience. Not only did it create a negative image of the City nationally, but to some extent it stimulated a flight to the suburbs, which began to seriously deteriorate the City's tax base. However, in the late 1970's and 1980's, Memphians joined together to reverse the negatives and create a positive future. In 1976, citizens organized The Memphis Jobs Conference to address some of the employment and economic development issues facing the City. The result was a major campaign to revitalize Memphis as a regional distribution center for many national corporations. This was part of a marketing strategy which focused on the fact that Memphis is located within 600 miles of 42.7% of the United States population. In the early 1980's the famed Peabody Hotel and Beale Street were renovated and reopened. Mud Island, a major recreational facility along the Mississippi River, brought tourism to the Mississippi River.

Most commercial growth in Memphis, however, has been moving in a northeasterly direction, along the Poplar Street corridor. Poplar Street growth has created an entire office market outside of the central business district. The bulk of the 1.1 million square feet of office space built in Memphis in 1990 was constructed along this corridor with very little new downtown development. The lack of growth in the central business district belies the economic health and vitality of the City. To a visitor, downtown Memphis, which is directly along the Mississippi River, gives the appearance of a declining city.

However, the people of Memphis realize that it is a city with many assets: the river, a healthy distribution industry, and an entrepreneurial spirit. Memphis' founders dreamed of creating a city on the banks of the Mississippi River which reflected that great city with the same name on the banks of the Nile River. Memphis is a proud and gracious community, but it is in a state of economic transition. In an effort to refocus and allow Memphis to embody its Egyptian meaning -- "a place of good abode" -- my urban renewal agenda concentrates on that to which Memphis owes its origin, the Mississippi River.

Throughout its history, people have gathered at the river in Memphis for commerce, recreation, housing, or just to experience its sheer pleasure. This river is the greatest physical asset this city has, and Memphians have taken it for granted. Memphis needs to rekindle the lost history, and take advantage of the potential that exists.

Early economic growth was totally dependent of the river. The Mississippi River and its total contribution to Memphis over its history involve both economic and psychological matters. People and goods came up the river from New Orleans or down the river via the Ohio River from Louisville, Cincinnati or Pittsburgh or from St. Louis and points on the upper Mississippi or Missouri Rivers. Cotton, the principle commodity handled in Memphis, was assembled there from various points in the mid-South prior to being shipped via the river in the nineteenth century. The appeal of the Mississippi throughout its colorful history has increased the fame of the city. The scenic attractions, the traditions of music and talented entertainers associated with the river have all contributed to Memphis' development.

Mr. Chairman, my goal is to make the Mississippi River Memphis' main attraction once again. The City's Riverfront Redevelopment Task Force has prepared an extensive long-term plan for the Riverfront. In addition to transportation links and the establishment of museums and parks, much work is necessary to improve boat access and bank stabilization along the Mississippi River.

The first priority in this effort is to continue the bank stabilization work of the Corps of Engineers along the Tom Lee Park area. Phase II of that work, for which the City is seeking federal assistance, will entail additional bank stabilization and related work on the Historic Cobblestones of Cotton Row. This nationally significant and historic area located along the Mississippi River will be the centerpiece and core of the redeveloped Riverfront.

The cobblestone wharf is the historic focal point of the City of Memphis and could possibly be seen as the commercial point of origin for the entire city. While economic activity in the very earliest times of Memphis was centered around the forts built here by the Spanish, French and eventually Americans, Memphis did not truly become a commercial city and a distribution center until the age of the steam boat and then finally the train. Both transportation modes centered on the riverfront.

The cobblestones were originally brought in from several sources. They were laid over a period of years and provide a distinctive feel and texture to the riverfront. The cobblestones are listed on the National Register of Historic Places and a significant part of the Cotton Row Historic District. Bails of cotton were brought to the City via steam ship where they were loaded on carts and taken up the bluff to the cotton grading houses.

Currently, the cobblestones are underutilized and in an extremely deteriorated condition. The base of the cobblestones is falling into the river at an alarming rate. Over the years, the cobblestones have been replaced in certain parts with inferior replicas. Sink holes have developed in areas which endanger the cobblestones further. Some areas have become impassible and access to them for the general public is restricted.

In an effort to reverse this situation, the first segment of restoration, which could be completed by the Corps, would consist of improvements of the existing riverbank including the following:

- **Retaining Wall** to secure the cobblestones at the river's edge;
- **Dredging** the river bottom adjacent to the retaining wall to provide depth clearance for riverboats;
- **Dolphins** to provide secure anchorage of dockside facilities;

- Adjustable ramp structures to provide access from land to dockside facilities;
- Foundation stabilization to remove saturated and unsuitable soils; and
- Utility relocation.

This work is the next logical step toward improving the banks of the Memphis Riverfront.

An additional exciting aspect of this effort is the establishment of a new exhibit which highlights the Army Corps of Engineers' management of one of the world's greatest waterways, the Mississippi River. The new exhibit would be an Interpretive Center aboard the M/V Mississippi IV and the Dredge Burgess. These vessels are presently surplus to the Corps and ownership of the M/V Mississippi has been transferred to the City of Memphis. Ownership of the Burgess will also be transferred to the City.

These vessels are very impressive and ideally suited to serve as an interpretive exhibit outlining the history of the Memphis District of the Army Corps of Engineers. This exhibit and the two Corps vessels will be linked to the existing Mississippi River Museum on Mud Island and the New Tennessee Visitors Center.

I strongly believe that the Memphis Riverfront is the key to revitalizing the entire City of Memphis. The Riverfront is the most underutilized physical asset that this community has. There are 1.2 million people in the surrounding region, yet during most of the year there are less than 400 people along the Memphis Riverfront at any given time. The opportunity for this area is incredible.

To illustrate Memphis' commitment and belief in the River as the key to revitalizing the City, I would like to note several important developments aimed at revitalizing downtown that are already complete:

- Beale Street Historic District has brought people back to the very street that nurtured the Blues, a truly unique American art form.
- The Pyramid, a multi-use sports entertainment complex has added a distinctive element to the Memphis skyline, as well as an ideal sports facility.
- The Main Street Trolley has brought back the romance of old transportation modes, which has been a tremendous success with Memphians and tourists alike.
- The National Civil Rights Museum, a fitting monument to one of the greatest struggles in American history, educating young and old about the price of freedom and a monument to a great American, Dr. Martin Luther King, Jr.
- Tom Lee Park which is located on the banks of the Mississippi has become an idyllic setting for Memphians to relax and view the river, as well as a location for festivals.

In summary, it is crucial to reiterate the importance that the Riverfront holds for downtown and the City as a whole. The Riverfront is still very much alive in the imaginations of Memphians. Memphians are rediscovering the values of urban living and more and more are returning to the River.

Mr. Chairman, the Riverfront Redevelopment is the cornerstone of my plan to facilitate the rebirth of Memphis. My Urban Agenda also involves vigorous community development for the entire city which will promote job creation and improve tourism. With

such an enormous task at hand, the City is in need of federal assistance if many of these plans are to come to fruition. I therefore request the federal government's involvement and support for our initiatives. Specifically, I respectfully request federal assistance in the amount of \$1,500,000 to support our historic preservation efforts along the riverfront.

I look forward to the opportunity to discuss the City's plans in greater detail with you and your colleagues. Again, thank you for the opportunity to submit testimony to the Record.

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**PREPARED STATEMENT OF STEVEN J. DE KOZLOWSKI, PRESIDENT, THE
AQUATIC PLANT MANAGEMENT SOCIETY**

Mr. Chairman and Members of the Subcommittee, I appreciate this opportunity to provide written testimony on behalf of the Aquatic Plant Management Society (APMS) on the importance of continued Corps participation in states' efforts to control exotic aquatic weeds. I echo the recommendations of water managers and APMS members nationwide for the continued full funding of the Aquatic Plant Control Program (00.36) of the Corps General Construction budget. APMS is a national organization with six regional affiliate organizations comprised of administrators, scientists, educators, commercial pesticide applicators and individuals concerned with the management and study of aquatic plants.

AQUATIC WEEDS ARE A MAJOR THREAT TO AMERICA'S WATER BODIES

This is a severe, nationwide problem; in many areas the infestation is so severe that navigation, public water supply, electric power generation and flood control are now critical concerns. As state legislatures work to improve state funding to help resolve this crisis, there is clearly an ongoing national interest in keeping waterways free of these exotic plants.

The Administration's fiscal year 1996 budget recommends eliminating the Corps of Engineers Aquatic Plant Control Program with the states. Although this program is relatively small, capped at \$12 million annually, the benefits are enormous. Cost share funds provide research which states cannot afford. Corps personnel advise states on potential problems with, and effective solutions for, invasive exotic aquatic plants, and provide important cost-share start up funds to begin state control programs. Where aquatic plant related problems already exist, cost-share funds preserve water uses and prevent or slow their spread into uncontaminated waters within states or across state borders.

INVASIVE EXOTIC AQUATIC PLANTS

Native aquatic plants are beneficial to lakes and rivers by providing fish and wildlife habitat, nutrient filtration, and shoreline stabilization. But a few exotic aquatic plant species that have been introduced into the United States can quickly overwhelm water bodies, costing billions of dollars in management and lost revenues each year. Problems include: loss of recreational and business opportunities, increased flooding, impaired industrial, municipal, and agricultural water withdrawals, degraded water quality and fish and wildlife habitat, accelerated filling in of lakes and reservoirs, loss of hydroelectric power generation, and depressed property values.

Invasive exotic plants are not confined by political boundaries, but rather are regional and often nationwide problems. The worst among these plants include: the floating water hyacinth of the Gulf Coast and South Atlantic regions, the submersed Eurasian watermilfoil which is establishing throughout North America, and probably worst of all, the submersed species, hydrilla. All are among the fastest growing plants known, possessing multiple reproductive strategies that make control difficult and eradication nearly impossible. Therefore, periodic preventive control actions must be taken to maintain exotic plant populations at low levels.

EXAMPLES OF PROBLEMS

Although milfoil and hydrilla are submersed species, both form dense, nearly impenetrable mats at the water surface. Like water hyacinth, they can create ecological and economic nightmares if not controlled.

- Hydroelectric power on the Santee Cooper Lakes in South Carolina was shut down in 1991 when hydrilla mats clogged the water intake pumps. Disruption in power generation resulted in an estimated \$4 million in lost power and associated operational costs. In addition, restricted flows led to one of the state's largest fish kill incidents with game fish losses totaling \$526,000.
- In one of the largest fish kills of recent Florida history, nearly 10 million fish died in 1985 in Corps of Engineers constructed and managed Rodman Reservoir, when dense hydrilla growth depleted oxygen in the water.
- Clear Lake in northern California lies at the head of the Sacramento-San Joaquin Delta through which passes 65% of California's water supply. Hydrilla is expanding in Clear Lake, and not only jeopardizes the estimated \$50 million recreational value of the lake, but also the delivery of irrigation water to a huge portion of California's \$22 billion agricultural industry.
- The endangered Everglades kite and wood stork are jeopardized when hydrilla and water hyacinth cover Florida waters preventing these species from seeing their aquatic prey. Drifting mats of water hyacinth destroy Everglades kite nests.
- The Kissimmee River Restoration Project in South Florida will cost hundreds of millions in state and federal dollars. Hydrilla now fills the 65,000 acres of lakes that provide flood control for the surrounding communities as well as the water source for the restoration project. Light to moderate rainfall events in 1994 resulted in flooding, as hydrilla-impeded water discharged through this Federal Navigation Project. Heavy rainfall and high winds common to this area could produce catastrophic results.
- A 1985 United States Fish and Wildlife study values Florida's fresh waters at \$1.5 billion per year from recreational fishing alone. More than a quarter million anglers who fish in Florida fresh waters each year come from other states. When hydrilla infests a water body in Florida, use drops by as much as 90%.

EXTENT OF THE EXOTIC PLANT PROBLEM

Nearly all of the Corps of Engineers cost-share aquatic plant control funds, and much of the research effort are applied toward the management of water hyacinth, hydrilla, and Eurasian watermilfoil. Water hyacinth infests all of the Gulf Coast states into the Carolinas, with the most severe impacts in Florida, Louisiana and Texas.

Eurasian watermilfoil spread into 33 states in the first 40 years after its introduction into the Washington D.C. area in 1942. Today, active milfoil management is conducted in many of these states. Several, including Florida, Wisconsin, and Washington, receive cost share funds. Others, for example, Michigan and Minnesota, have petitioned for Corps of Engineers cost-share funds to manage and prevent further spread of Eurasian watermilfoil, but are not yet in the program.

Hydrilla was introduced into Florida in the 1950's and has spread into all of the Gulf Coast and South Atlantic states and Tennessee. A second strain of hydrilla that was later imported in the Washington D.C. area has found its way as far south as Georgia, and has

been transported to California. All of the states into which hydrilla has been introduced now have severe problems. This plant has reached crisis levels in many states and control costs nationwide exceed \$18 million. Hydrilla in Florida infests 42 percent of all public lakes and has doubled in the past two years to 100,000 acres. In South Carolina, hydrilla introduced into the state in 1982 now infests about 50,000 acres. Coverage in Lake Moultrie, one of the Santee Cooper lakes, has expanded to 20,000 acres just in the past five years.

Recreational boats (and trailers) serve as vectors that accelerate the spread of hydrilla throughout the country. Each year millions of boaters unintentionally transport hydrilla from infested to uninfested waters while using these waters for recreational purposes. Small plant fragments introduced by boats and trailers quickly develop into nuisance populations. The states of Oregon, Nevada and Arizona are carefully watching California's hydrilla eradication program. If California does not quickly eradicate hydrilla, it will eventually spread state-wide and then contaminate these neighboring states, just as hydrilla continues to spread across the eastern half of the nation from Florida and Washington, DC.

MANAGEMENT PERSPECTIVES

Technology is available to manage exotic aquatic plants, even in the most heavily infested waters. Management programs which integrate herbicides with mechanical and biological controls have been developed to provide cost-effective and environmentally friendly control of exotic aquatic plants. However applications of these programs and further research and development of efficient control practices is most often limited by funding.

CORPS OF ENGINEERS ROLE IN AQUATIC PLANT CONTROL

Aquatic Plant Management

There is a national interest in the control of invasive, exotic aquatic plants, and the Corps of Engineers is in the best position to take the leadership role in this process. The Corps constructed and now maintains numerous reservoirs and waterways across the nation. Aquatic plant control is as much a part of water body maintenance as is dredging or structural upkeep. Furthermore, effective control of these exotic plants restores and protects aquatic habitats and the biological integrity of the water body.

Many Corps maintained waters are infested with exotic plants and threaten adjacent waters. For example, the state of Alabama cannot afford to treat hydrilla in the Tombigbee Waterway between the Coffeeville Reservoir and Mobile Bay without assistance from the Corps. Yet this area was infested by hydrilla from upstream Corps reservoirs.

Without assistance, South Carolina cannot afford to keep hydrilla from spreading into Corps managed waters such as Hartwell, Richard Russell and Strom Thurman Reservoirs which lie astride the Georgia-South Carolina border. Without continued support from the Corps of Engineers cost-share program, the state of Washington cannot afford to manage milfoil in the Pend Oreille River. This program is responsible for keeping milfoil from being transported upstream to Corps reservoirs which do not currently contain milfoil.

The cost-share grants provided by the Corps of Engineers are effective in jump-starting programs in the states. This is particularly important when exotic plants first invade an area and eradication is possible at a low cost. Corps cost-share grants are also effective in sustaining and building state participation in existing programs.

Cost-Benefits

The multiplier effects of the cost-share program are enormous. As mentioned earlier, Clear Lake in California provides approximately \$50 million to the local economy through recreational activities alone -- when not infested with hydrilla. Florida's fresh waters

collectively provide to the economy \$1.5 billion from fishing alone -- when they are accessible.

In Florida, each 50 cents in Corps cost-share funds protects about \$1000 of recreational uses in public lakes. Each 50 cents spent to contain or eradicate new or small hydrilla infestations saves more than \$100.00 in control costs. Nationally, this program translates into billions of dollars of savings in management costs, beneficial uses, protection of property values and avoided lost revenues.

Research and Program Development

The Corps of Engineers research and program development expertise is invaluable. Although individual states can become knowledgeable in managing plant problems resulting from current infestations of local waters, none has the staff or funding to prepare for problems which have not yet developed. The Corps' Vicksburg, Mississippi research station and Jacksonville, Florida Operations Support Center are equipped to provide technology and operations information necessary for quick and effective responses to new problems. Often, if invasive aquatic plants are managed soon after introduction, eradication is possible.

Individual states cannot afford to fund overseas exploration for biocontrols. However, results of Corps biocontrol research are now being applied from New England through Florida, Texas and into Washington.

SUMMARY

In closing, Mr. Chairman, I wish to thank you and members of this subcommittee for this opportunity to share the view of many states that full funding of the Aquatic Plant Control Program in the Corps of Engineers budget is critical. For a relatively small investment annually, the Corps cost-share program can save billions of dollars in state water management costs and avoided lost revenues.

Hydrilla and Eurasian watermilfoil problems of one state will soon spread to many others if management is not both swift and effective. Clearly, the control of invasive exotic aquatic plants is a nationwide -- not local -- problem. State aquatic plant managers need this program to continue to protect these national waterways.

We urge you to support the continued funding of the Corps of Engineers aquatic weed control program.

PREPARED STATEMENT FROM U.S. ARMY CORPS OF ENGINEERS AQUATIC PLANT PROGRAM AT THE UNIVERSITY OF MIAMI

The University of Miami Rosenstiel School of Marine and Atmospheric Science's Center for Marine and Environmental Analyses is in the second year of a multi-year contract with the U.S. Army Corps of Engineers (CoE) to develop new experimental and modeling capabilities to understand aquatic ecosystems, to design ecosystem management approaches that restore and protect South Florida's endangered Everglades and other coastal aquatic ecosystems, and to develop a new curriculum to train graduate students in environmental science and policy studies relevant to large aquatic ecosystems. Funding for this comprehensive program, which is being conducted in partnership with several Historically Black Colleges and Universities (HBCU), comes from the Aquatic Plant Research Program Budget at the COE's Waterways Experiment Station in Vicksburg, Mississippi.

The project is organized around the newly emerging principles of ecological risk assessment and ecosystem management and it builds upon previous work conducted under the sponsorship of the U.S. Man and the Biosphere Program, the Environmental Protection Agency, NOAA's Coastal Ocean Program and corporate- and private foundation-supported work. Because of the unique relationships of the academic Center for Marine and Environmental Analyses, the CoE project will be broadly coordinated and integrated with other ongoing South Florida research, particularly in conjunction with the Federal Ecosystem Restoration Working Group, the South Florida Water Management District, the Florida Department of Environmental Protection, the University of Florida Agricultural Research Station in Belle Glade, and other regional groups of interest.

The professional master's and doctoral degree curricula which will be developed under the program will benefit from a multi-year systemic undergraduate minority-recruitment and development program already in place at the University of Miami's College of Arts and Sciences in conjunction with Miami Dade Community College. It is expected that a diverse and gifted graduate student pool will be recruited from this program, which is supported by the Howard Hughes Medical Institute and the National Science Foundation, as well as from the HBCU's that will participate in the research program. The focus of the CoE sponsored research and training activities at Rosenstiel School's Center for Marine and Environmental Analyses is on the health and management of coastal ecosystems. In particular, the project is developing policy-relevant tools to evaluate the consequences to coastal communities of water management, including changes in the amount of fresh water flows into estuaries, effects of polluting nutrients entering coastal systems, and effects on estuaries of fresh water plant control.

The ecosystem management component of the project is being conducted in conjunction with the Everglades Ecosystem Restoration Group at the CoE's Jacksonville District Headquarters to advance a case study of the ecological and societal consequences of restoration options outlined in the November 1994 Reconnaissance Study of the Central and South Florida Flood Control Project. This work will contribute directly to the next phase of the restoration project, the five-year Everglades Restoration Feasibility Study which will narrow the restoration options and test approaches outlined in the Reconnaissance Report. This activity builds on a five-year U.S. Man and the Biosphere funded project led by the Center for Marine and Environmental Analyses to define ecological and societal sustainability goals for the Greater Everglades Regional Ecosystem.

The third component of the project will begin in the Fall of 1995 and focus on the development of a new generation of professionals, with strong minority representation, who are trained in the science, policy and management methodologies that are relevant to the particular challenges of large regional aquatic ecosystems that have become dominated by human development. In this regard, the case of South Florida will serve as a training ground for scientists and managers who will maintain the balance between society and the natural systems well into the next millennium.

Already, the CoE-funded project can report a number of accomplishments toward providing policy relevant tools for decision making. The Center for Marine and Environmental Analyses has:

-- designed a new state-of-the-science microcosm experimental system for short-term, small-scale studies on seagrass ecosystem responses to stress;

- designed a new state-of-the-science mesocosm system for long-term studies of the seagrass ecosystems of South Florida;
- begun establishment of the experimental microcosm and mesocosm systems;
- initiated development of community-level models of seagrass ecosystems to simulate ecological effects of changes in salinity, nutrients, temperature, and other physical stresses on seagrasses and associated fish and shellfish populations;
- initiated development of water circulation models of estuaries and associated oceanic systems;
- developed a conceptual model to connect the seagrass ecosystem models with landscape models of adjacent freshwater and terrestrial systems and with coastal water circulation models;
- initiated a data base management system (DBMS) and a geographical information system (GIS) interface for linking ecological and physical models at the regional scale.

Future activities planned under this program are to:

- fully implement the microcosm and mesocosm experimental capabilities;
- conduct sets of controlled experiments to understand how coastal ecosystems respond to anthropogenic stresses;
- develop a state-of-the-science landscape-level model of the coastal environment of South Florida as a prototype of a new class of policy-relevant models;
- implement an ecosystem management case study of South Florida using the new methodologies, modeling tools and experimental systems to explore the ecological and societal implications of specific policy options for regional restoration and management of the environment;
- establish subcontracts with three HBCU's to conduct research studies related to the program objects;
- design and implement professional masters and doctoral programs in environmental science and policy and establish a recruitment program which emphasizes minority participation.

Through this broad and collaborative research agenda, the focus of aquatic plant research will take on a policy-relevant ecosystem level focus that is compatible and complimentary with other federal, state, local and private initiatives. The research will fill gaps in understanding that are critical for policy and management decision-making; the ecosystem management case study on South Florida will more clearly focus the range of possible restoration options for the Everglades and build consensus for a sustainable South Florida; and the educational components will ensure that the next generation of scientists, policy-makers and environmental managers have the training needed to assure the inter-generational sustainability of both the societal systems and the ecological systems of large regional areas such as South Florida.

UPPER MIDWEST WATER RESOURCE PROJECTS

PREPARED STATEMENT OF GOVERNOR JIM EDGAR, SPRINGFIELD, IL

The Honorable Pete Domenici
Chairman
Subcommittee on Energy and
Water Development
Committee on Appropriations
S-128 United States Capitol
Washington, D.C. 20510

March 28, 1995

Dear Mr. Chairman:

Please consider this as formal testimony conveying the State of Illinois' interests concerning the Fiscal Year 1996 appropriations for the Corps of Engineers. I ask your consideration of and favorable action upon the state's requests.

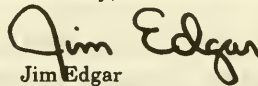
The enclosed list identifies those Corps of Engineers' projects of highest priority to the State of Illinois. Five state agencies reviewed these projects and found them worthwhile based on need, cost, local sponsorship and Corps interest. The list includes both items in the Administration's FY 96 budget request and others that we propose for special consideration.

I appreciate the fiscal constraints under which you are working and the difficulty you will face in allowing for special consideration of certain projects. Therefore, I would like to offer this explanation for the projects beyond the scope of the President's budget that Illinois requests. Two projects fall under the Corps' operation and maintenance responsibilities. Both have a direct impact on Illinois' ability to comply with the Supreme Court decision delineating the parameters for diversion of water from Lake Michigan. Illinois is on the verge of being penalized for leakages and inaccurate measurements of diversion resulting from inadequacies at Corps facilities. These problems must be rectified to prevent additional court action and probable extensive cost to the people in northeastern Illinois who are dependent on the diversion of Lake Michigan water for drinking water.

The two other items are corrosion control construction projects in Chicago along Lake Michigan. The Casino Beach project requires only \$1.3 million for completion. The Chicago Shoreline project, much larger in scope and import, could be initiated with \$572 million to complete preconstruction work and \$3 million to begin construction. The Corps is prepared to begin the Chicago Shoreline project but is precluded from budgeting funds for it because Congressional authorization was not completed during the 103rd Congress. Time is of the essence along the Chicago shoreline because much of the current shoreline protection system is significantly deteriorated.

I recommend inclusion of all these projects in the FY 1996 Energy and Water Development Appropriations Act. Should you require any supporting documentation for these projects or other information, please do not hesitate to contact my Washington Office (202/624-7760). Please include this correspondence in the hearing record of the Subcommittee on Energy and Water Development.

Sincerely,



Jim Edgar
GOVERNOR

The state of Illinois supports the following projects in the Administration's FY 1996 budget proposal:

SURVEYS

Alexander and Pulaski Counties	\$175,000
Des Plaines River	362,000
Freeport	108,000
Mississippi River Levees	50,000
Sny Island	248,000
Upper Mississippi & Illinois Navigation Study	6,205,000
Waukegan Harbor	25,000

PRECONSTRUCTION ENGINEERING & DESIGN

Chicago Shoreline	400,000*
Nutwood Drainage & Levee District	150,000

CONSTRUCTION

East St. Louis	3,700,000
Four Locks, Illinois Waterway	3,254,000
Loves Park	750,000
Melvin Price Lock and Dam	2,400,000
Mississippi River, Major Rehabilitation:	
Lock & Dam 24	2,000,000
Lock & Dam 25	4,300,000
Lock & Dam 14	700,000
Olmsted Lock & Dam	32,100,000
Rend Lake	300,000
Upper Mississippi River System Environmental Management Program	19,455,000

OPERATIONS

Illinois supports the Corps' budget request for continued adequate maintenance and operation of navigation, flood control, and multipurpose projects in and bordering on the state. The State of Illinois also supports the Corps' remaining rehabilitation work for the Illinois and Mississippi Canal (Hennepin) to comply with the Congressional language in previous authorizations, which directs the Corps to rehabilitate the canal with authorized funds for use as a recreational facility.

ADDITIONAL REQUESTS

In addition to the projects in the Administration's proposed budget, the State of Illinois has the following needs and priorities:

Chicago Harbor (Operations and Maintenance)

There is a need to accelerate design and initiate rehabilitation of the Chicago Lock. Before emergency repairs were conducted in 1993, uncontrolled leakage through the lock gates added 232 cubic feet per second to Lake Michigan diversion. Excessive leakage through this federal lock interferes with lake diversion measurements and accounting giving the appearance that there is diversion in excess of the allowable limit.

Lake Michigan Diversion (Operations and Maintenance)

There is a need for an additional \$100,000 to purchase, install, and calibrate two acoustic velocity measuring stations, one at the mouth of the Chicago River at Lake Shore Drive and the other riverward of the O'Brien Lock and Dam on the Calumet River. These two stations will provide accurate measurement of direct diversion from Lake Michigan including leakage and lockage. These flows have been grossly underestimated in the past as shown by actual measurements made in 1993. Accurate measurements are necessary in Lake Michigan diversion accounting to segregate flow through structures controlled by the federal government from

diversion by instrumentalities of the State of Illinois. These stations will also allow the diversion accounting system to be simplified with improved accuracy and much lower annual operating cost than present system.

Chicago Shoreline (PED and Construction)*

There is a need for \$572,000 to complete preconstruction engineering and design. In addition, \$3 million of construction general funds will allow the Corps to begin this crucial erosion control project.

Casino Beach

There is a need for \$1.305 million of construction general funds in the FY 1996 Corps of Engineer's appropriations to continue construction of the Casino Beach erosion control project in the City of Chicago.

PREPARED STATEMENT OF THOMAS S. FULLER, METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

On behalf of the Metropolitan Water Reclamation District of Greater Chicago (District), I want to thank the Subcommittee for this opportunity to present our priorities for Fiscal Year 1996 and, at the same time, express our appreciation for your support of the District's projects in years past. The District is the local sponsor for three Corps of Engineers priority projects of the Chicagoland Underflow Plan: the O'Hare, McCook and Thornton Reservoirs. We are requesting the Subcommittee's full support for these vital projects. Specifically, we are asking that \$10 million be included for the McCook and Thornton Reservoirs, as well as reprogramming authority to complete construction for O'Hare Reservoir in the Subcommittee's Energy and Water Development Appropriations Act for FY 96. The following text outlines these projects and the need for the requested funding. Also, attached is a booklet indicating the municipalities in our area which benefit from these projects. The booklet reviews the history of the issues involved, including newspaper articles and pertinent data from the Corps of Engineers and the Illinois State Water Survey.

The Chicagoland Underflow Plan

The Chicagoland Underflow Plan (CUP) consists of three reservoirs: The O'Hare, McCook and Thornton Reservoirs. The O'Hare Reservoir Project was fully authorized for construction in the Water Resources Development Act of 1986 (P.L. 99-662). The authorization provides for the construction of a 1,050 acre-foot floodwater storage reservoir which will be connected to the existing O'Hare segment of the District's Tunnel and Reservoir Plan (TARP). Adopted in 1972, TARP was the result of a multi-agency effort which included officials of the State of Illinois, County of Cook, City of Chicago and the District.

TARP was designed to address the overwhelming water pollution and flooding problems in the Chicagoland area. These problems stem from the fact that the capacity of the area's waterways has been overburdened over the years and has become woefully inadequate in both hydraulic and assimilative capacities. These waterways were no longer able to carry away the combined sewer overflow discharges

nor were they able to assimilate the pollution associated with these discharges. Severe basement flooding and polluted waterways, (including Lake Michigan which is the source of drinking water for millions of people) was the inevitable result. We point with pride to the fact that TARP was found to be the most cost-effective and socially and environmentally acceptable alternative for reducing these flooding and water pollution problems.

The plan called for the construction of new "underground rivers" beneath the area's waterways. The "underground rivers" would be tunnels up to 35 feet in diameter and 350 feet below the surface. To provide an outlet for these tunnels, reservoirs were to be constructed at the ends of the tunnel system. Approximately 75 miles of tunnels have been constructed at a cost of \$2.15 billion and are operational. These tunnels capture the majority of the pollution load by capturing all of the small storms and the first flush of the large storms. Another 18 miles of tunnels costing \$310 million are under construction. The tunnels currently have no place to discharge when they fill up during large rainstorms because the O'Hare, Thornton and McCook Reservoirs have not been built yet. Without these outlets, the local drainage has nowhere to go when large storms hit the area. Therefore, the combined stormwater and sewage back up into over 550,000 homes.

The O'Hare Reservoir - Chicagoland Underflow Plan

The O'Hare Reservoir project is the first component of CUP, the Corps' reservoir plan. Understanding the severe flood threat to the densely populated north central Cook County area, Congress authorized the project in 1986. The project's 1,050 acre-feet of storage is the optimum cost-effective storage capacity for flood control purposes. In the FY 1990 Energy and Water Development Appropriations Act, Congress provided \$1.5 million in first-year construction funds for the O'Hare Reservoir and specified that the reservoir be built to at least 1,050 acre-feet in size as authorized, and in full accordance with the cost-sharing percentages specified in Section 103 (a) of the Water Resources Development Act of 1986. The FY 1992 Energy and Water Development Appropriations Act provided \$4.0 million in third-year construction funds to continue construction on the O'Hare Reservoir project and contained language directing the Corps of Engineers to award continuing contracts until construction is completed. As we have stated to this Committee over the years, the District is the local sponsor for this project and is fully committed to it. The District has already purchased the necessary land at a cost of \$4.2 million and has spent \$2.3 million for utility relocation. The District will continue to meet its remaining cost-sharing obligations under the law.

Based on the present high flood risk and potential damage due to inadequate channel capacity, we, along with our supportive congressional delegation, are requesting that the Subcommittee include authority to reprogram construction funds to complete critical construction work on the O'Hare Reservoir project in the FY 1996 Energy and Water

Development Appropriations Act. With this ability, we will be completing the prototype reservoir for the overall TARP system. We are pleased to be completing this first fully operating element and bringing critical flood protection to the north central Chicagoland area, an area which has been ravaged in years past.

Based on two successive Presidentially-declared flood disasters in our area in 1986 and again in 1987 and dramatic flooding last June, we believe the probability of this type of flood emergency occurring before implementation of the critical flood prevention measure is quite high. As the public agency for the greater Chicagoland area responsible for water pollution control, and as the regional sponsor for flood control, we have an obligation to protect the health and safety of our citizens. We are asking your support in helping us achieve this necessary and important goal of construction and completion.

The McCook and Thornton Reservoirs - Chicagoland Underflow Plan

The McCook and Thornton Reservoirs of the Chicagoland Underflow Plan (CUP) were fully authorized for construction in the Water Resources Development Act of 1988 (P.L. 100-676). CUP, as previously discussed, is a flood protection plan that is designed to reduce basement and street flooding due to combined sewer back-ups. These projects are the second and third components of CUP; they consist of reservoirs to be constructed in existing quarries at McCook in west suburban Chicago and Thornton in south suburban Chicago.

These reservoirs will provide a storage capacity of 15.3 billion gallons and will produce annual benefits of \$75 million. The total potential benefits of these projects are approximately twice as much as their total cost. The District, as the local sponsor, is actively pursuing land acquisition for these projects, and is prepared to meet its cost sharing obligations under P.L. 99-662.

These projects are a very sound investment with a high rate of return. They will enhance the quality of life and the safety and the peace of mind of the residents of this region. The State of Illinois has endorsed these projects and has urged their implementation. In professional circles, these projects are hailed for their farsightedness, innovation, and benefits.

We take particular pride in the Thornton Reservoir because of our contribution to the project. Our staff saw reason to invest time and talent to review and evaluate the draft recommendations for the Thornton Reservoir, which the Corps of Engineers first released in February 1986. We are proud that our review and evaluation resulted in the formulation of proposals for design changes which can produce \$24 million in savings to the taxpayers at large. These changes involved coordination and consultation between four agencies

at the federal, state and local levels, and were welcomed by the Corps and incorporated in the final report.

We have been very pleased that over the years the Subcommittee has seen fit to include critical levels of funds for this important project. We were delighted to see the \$11,500,000 in unobligated construction funds included in the Administration's FY 1995 budget. However, it is critical that we receive FY 1996 funds to maintain the commitment to this project. Given the Corps' progress, Congress' direction and in order to provide critical flood relief, the District is urgently requesting that the Subcommittee include an additional \$10 million in continuing construction funds beyond the unobligated funds for the McCook and Thornton Reservoir projects in the FY 96 Energy and Water Development Appropriations Act.

Summary

Given the broad sweep of our jurisdiction and the severity of flooding in our area, the Corps was compelled to develop a plan that would compliment the uniqueness of TARP and be sizable enough to accommodate our service area. With a combinedsewer area of 375 square miles, consisting of the City of Chicago and 51 contiguous suburbs, there are 550,000 homes within our jurisdiction which are subject to flooding at any time. Of these, 185,000 homes flood on a regular basis because of inadequate conveyance and outlet capacity.

The annual damages sustained exceed \$150 million. If these projects were in place, these damages could be eliminated. We must consider the safety and peace of mind of the two million people who are affected as well as the disaster relief funds that will be saved when these projects are in place. As the public agency in the greater Chicagoland area responsible for water pollution control, and as the regional sponsor for flood control, we have a obligation to protect the health and safety of our citizens. We are asking your support in helping us achieve this necessary and important goal. It is absolutely critical that the Corps' work, which has been proceeding for several years, be continued on schedule.

Therefore, we urgently request that \$10 million be included in the FY 1996 Energy and Water Development Appropriations Act to continue construction of the McCook and Thornton Reservoirs and reprogramming authority be included in the bill to complete the O'Hare Reservoir.

Again, we thank the Subcommittee for its support of our projects over the years and we thank you in advance for your consideration of our request this year.

PREPARED STATEMENT OF CHRISTOPHER J. BRESCIA, PRESIDENT,
MIDWEST AREA RIVER COALITION 2000

Mr. Chairman and Distinguished Members of the Subcommittee, I am Christopher Brescia, President of the Midwest Area River Coalition 2000 (MARC 2000), based in St. Louis, Missouri. Thank you for the opportunity to submit our views on certain portions of the U.S. Army Corps of Engineers' program for FY 96.

Our testimony expresses unqualified support for the President's FY 96 funding request for:

o	Major Rehab of L&D 24 (Upper Miss-New Start)	\$2,000,000
o	Major Rehab of L&D 14 (Upper Miss-New Start)	\$ 700,000
o	Major Rehab Completion for 4 locks on the Illinois River	\$3,254,000
o	Major Rehab Completion of L&D 25 (Upper Miss)	\$4,300,000
o	Construction funds for Mel Price (L&D 26) (Upper Miss)	\$2,400,000
o	Major Rehab of L&D 7 (Upper Miss)	\$1,140,000
o	Major Rehab of L&D 9 (Upper Miss)	\$1,643,000
o	Major Rehab Phase F Supply & Installation (Upper Miss)	\$2,171,000
o	Navigation-related Operation and Maintenance Requests for the St. Louis, Rock Island and St. Paul Districts	

We are also expressing qualified support (or support with reservations) for the continuation of the Upper Mississippi/Illinois River Navigation Feasibility Study funding request for \$6,000,000. In addition, we are reserving comment on the future of the Environmental Management Program (EMP) funding.

MARC 2000, for those new members on this Subcommittee, represents members who generate over \$100 Billion in economic activity from the Midwest and conservatively employ or self employ more than 148,000 people in 21 states. Frankly, our ranks continue to swell as the challenges to the future viability of the Upper Mississippi and Illinois Rivers as transportation corridors increase.

This past year, our agricultural producers, agribusinesses, and waterway transportation users have been joined by individual farmers, service providers, and railroad beneficiaries to the waterway system. We continue not only to represent a cross-section of our region's interests from Minnesota to Louisiana, but also from regions like the Missouri River reach into Nebraska as well as further over to Michigan. Why such a broad base? Partially because in order for U.S. businesses to compete globally, the aggregation of interests into units capable of competing are covering larger U.S. domestic geographical areas.

Last year the region's economy made significant strides in recovering from the Flood of 1993. Record crop production helped many farmers regain a firm footing. Major grain exports coupled with industrial product demand re-engaged the transportation sector. In just the first two months of this year, we have exceeded all recorded history in the volume of tonnage moving on the Upper Mississippi and Illinois Rivers. Barring any major unforeseen event, we expect 1995 to break all records.

This past year was in many respects a watershed year. So many of our represented industries have been wondering what was going to happen in the global economy. With the passage of NAFTA, corn exports to Mexico in the first nine months increased 8 to 9 times over the previous year. Most importantly, China made a major shift in purchasing patterns and switched from being a net exporter to a net importer of grain. This is the wild card many forecasters have been waiting for. According to new projections, China is expected to import 12 million tons this year, rising dramatically to anywhere between 20 and 50 million metric tons by the early part of the next

century. Several forecasts place China's annual imports at about 90 million tons by the year 2030.

Funding Requests

We are grateful that the Congress, especially this Committee, and the Corps of Engineers have anticipated the needs of our waterway system so that our nation may share in this major market opportunity. The Corps' Major Rehabilitation funding requests are part of scheduled improvements currently underway and proposed for the next few years, to provide major rehabilitation to a series of locks and dams, many that are more than 50 years old. We strongly urge this Committee to give these funding requests high priority.

We also urge the Committee to carefully evaluate the operations and maintenance requests from the three Corps Districts and two Divisions responsible for keeping the Mississippi and Illinois Rivers navigable. Record movements on the waterways system will place continued pressure on the budget to keep up. The four locks on the Illinois River (Lockport, Marsailles, Brandon Road, Dresden Island) that will be closed this year for repairs are integral to shipments of grain, steel, cement, coal, building materials for the states of Illinois, Michigan, Wisconsin, and Indiana to name a few. Let us not forget that many of these products also originate from Louisiana, Kentucky and the length of the Ohio Valley. Funding needs must be met in order for navigation to return to full utilization as quickly as possible. This closure will cost just one of MARC 2000's members from between \$3-4 million. The sooner the rehabilitation is completed and navigation restored, the quicker my members can return to a normal operating pattern.

Upper Mississippi/Illinois River Navigation Feasibility Study

This multi-year navigation feasibility study is reviewing the future role the waterways can play in continuing to fuel economic expansion in the region. In past years we have supported this effort and identified this feasibility study as a top priority for the region's economic future.

Especially in view of evolving global market developments that are stimulating increased demand for one of our nation's single most profitable exports, namely grain, we believe that it is important to move forward with addressing infrastructure capacity limitations as well as efficiency measures as quickly as possible. In the past, we have reluctantly agreed to the study's six-year time frame, while at the same time cautiously examining the development of the Corps' grand experiment to conduct a "system feasibility study," rather than using the long-established site-specific approach. We have been repeatedly told that such an endeavor had never been undertaken before. We were told new theories were being put into practice for the first time. Our support and advocacy has been contingent on the fact that once the initial recommendations for action were known, concurrent site-specific analysis could begin and that all studies would be completed on time. For this reason, we have been reluctantly "living with" a six-year study, when we knew the economics and engineering could be completed in three.

We have spent the last two years engaged in virtually every aspect of this study as humanly possible. We applaud the efforts made by the North Central Division, the Lower Mississippi Valley Division, each of the three districts involved, and the personal attention of Major General Genega, the Director of Civil Works and his headquarters staff. Significant efforts have been made to assure the region that, despite the broad scope of this study and the management challenges in this effort, this study would remain focused, on target and on time.

However, Mr. Chairman, the Corps of Engineers seems to be the only Federal agency in the process committed to keeping this study focused. During our own review of

the scope of the study, we have determined that there exists a potential for unlimited study. This is particularly due to the exhaustive requests for environmental analyses. Every other aspect of the study program has drawn in its belt. The environmental portion, because of excessive pressure from the U.S. Fish and Wildlife and the Environmental Protection Agency and State river biologists, on the contrary, is hard pressed to even engage in the work they have already agreed to conduct. Inordinate time and money is spent by these groups to find new arguments to expand the scope of the program, rather than assisting in making the already agreed program sound.

Over the last two years, the study has grown to \$39 million. The Environmental portion of the study has grown from \$9 to \$13.9 million. Now, the Corps has been told that they need to conduct an additional \$25 million in environmental studies over at least the next six years. It is not surprising that this latest package also includes everything that was rejected by the Corps in the first round. The "we shall leave no rock un-turned" mentality exists because those proposing these large sums are not being held accountable for their recommendations, nor are these recommendations being proposed within the context of a prioritized process.

In view of these developments, Mr. Chairman, we have indicated qualified support for the continuation of this study initiative. We believe there exists an imperative for this Committee to take a firm stand for reasonableness in the process.

First, we recommend that this Committee review the scope of this study and determine whether it believes that this conceptual "system study" will actually result in a product that is understandable and sufficient to act on. If not, an alternative would be to refocus this study to that portion of the river system identified by the reconnaissance phase as most critical and of the highest priority in the near term. Can we really hope to complete responsible projections over a fifty year time line? Is there anyone in 1945 who truly could have predicted what we need today? Taking this action would significantly reduce the scope of this effort to a manageable area.

However, if the Committee and the Corps determine that the "system study" will result in an acceptable, understandable and functional product, then it is our recommendation that, as has been done with certain other studies and projects, this Committee should consider indicating to the Corps of Engineers a time certain when they should submit a report to Congress. In addition, we believe that in order to keep the Federal agencies within reasonable and non-exorbitant funding levels, the Committee should indicate a limited dollar amount for the completion of this study.

Finally, we would recommend that there be some element of accountability to those pressing relentlessly to reshape this Navigation Feasibility Study into a River Basin Ecosystem study. If the Fish and Wildlife, EPA and States are so convinced that all of these studies must be done, then we suggest that this Committee reduce the funding of those agencies by the appropriate amount and supplement the funds allocated to the Corps of Engineers.

Re-inventing government should also take place on a budget and appropriations basis. If existing law requires consultation, then the agency recommending that another Federal agency take action affecting budgetary levels should be willing to follow through with funds. Our suspicion is that these recommendations are not being evaluated within the context of agency funding priorities. Under these accountability principals, perhaps we would have fewer disagreements between government agencies and could easily reduce the time to complete this study by 30 to 40 percent.

The same condition could apply to the States. Just as the States have legitimately opposed unfunded mandates, then we suggest there should be some cost-sharing by the States on their additional requests. Someone has to draw the line of reason and say no! By seriously considering our recommendations of establishing a time certain

for submission of a report to Congress and a \$ limitation, this Committee can take the first step in sending a message that there are not unlimited funds and we must face our infrastructure needs sooner not later.

Meanwhile, the economic and engineering functions have been hard at work finding ways to complete as high a level of analysis as possible within budget limitations. Early in the process, state agency and private-sector groups like ours successfully have challenged these disciplines to find ways to reduce costs for alternatives under development. There will always be a desire for more, but decisions have been made to keep the level of analysis reasonable.

What we thought was a navigation feasibility study has the potential of being turned into a basin ecosystem study with perpetual demands for resources. With this in mind, we must not forget that the Upper Midwest is the largest source of U.S. export grain to the world market. If this condition is to remain, grain must be competitively and reliably available to world-market customers. A cost-effective waterway system has allowed for this condition to develop. The waterway system is also an efficient conduit for domestically consumed building products, agricultural chemicals, fertilizer and coal, to name a few.

This waterway system operates through a series of locks and dams, many grouped in series, that are old and need to be modernized, especially at certain critical bottlenecks. Corps of Engineers (COE) traffic projections place critical portions of this system at full capacity by the year 2000, resulting in significant delays that could translate into costs as high as \$210 million per year and traffic movement off the river system for certain commodities. Other traffic simply may not move by any alternative mode under certain projected economic conditions.

Were this to happen, the powerful influence that the waterway creates in providing regional competitiveness evaporates. The result--reduced farm prices and income, reduced investment in the region, reduced secondary and tertiary employment and economic activity. Thousands of jobs are jeopardized by loss of traffic volume, increased government expenditures in other programs compensating for economic losses and decreased government tax revenues, to name just a few. We hope to avoid this situation.

Just maintaining the status quo is unacceptable. If we are to sustain the estimated 400,000 full or part-time jobs affected by the commercial use of the Upper Mississippi and Illinois Rivers, that navigation system must be modernized! These jobs generate almost \$4 billion in individual income and produce anywhere from a minimum of \$11 billion to a possible \$14 billion in revenue for our economy. Personal income tax receipts of almost \$600 million pays for a wide assortment of services at both the federal and local level. Make no mistake that our intention is to grow this jobs base.

EMP Enhancement

As an organization, we have as our primary objective the need to address the capacity concerns of the river system as they affect the future reliability of economic activity from the region. At the same time, we also understand that this agenda must take into consideration environmental impacts.

In the past we have supported the continued funding of the Upper Mississippi River System Environmental Management Program (EMP). This program has brought together traditionally competing interests into partnership for a better understanding of our river system. We join other groups in expressing our hope that funding for this program will continue in FY 96.

However, we wish to express our belief that significantly more could be accomplished through this program. As we listen to the concerns expressed by private environmental groups, federal agencies, and state resource agencies, we are beginning to wonder whether these funds could better be utilized. With the shrinking of federal dollars available, should we not be re-assessing whether the focus of this program is the highest environmental priority for our region or the nation? As the Corps prepares to submit a report to Congress on the accomplishments of over \$250 million invested through this program, we need to fully understand the national benefits and costs of this investment.

MARC 2000 continues to support an environmentally-sustainable agenda for our region. We would prefer to be engaged in discussions to move closer to that goal, rather than arguing over a process. However, we cannot plan for the future when the process is being used as leverage to any long-term discussions. Thank you for the opportunity to present our views.

PREPARED STATEMENT OF GURNIE GUNTER, PRESIDENT, MO-ARK
ASSOCIATION

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE

My name is Gurnie Gunter. I am the President of the MO-ARK Association. We are here today to request Fiscal Year '96 funds for the ongoing Flood Control Projects in the Kansas City Area. MO-ARK supports the request for these projects.

In addition let me say that the organization has been actively involved in the hearings conducted by the Corps of Engineers for the Draft Environmental Impact Statement (DEIS), from which the "Preferred" alternative has arisen. Our review indicates the alternative has arisen without the benefit of a close examination of the DEIS. We urge you to read the document and see if you don't agree with us. THE DEIS DOES NOT SUPPORT THE PREFERRED ALTERNATIVE, RATHER IT LENDS SUPPORT FOR THE CONTINUATION OF THE PRESENT PLAN OF OPERATIONS OF THE WATER MASTER CONTROL MANUAL FOR THE MISSOURI RIVER.

We are also opposed to the Administration's plan for reducing the Mission of the Corps of Engineers by virtual elimination of all flood protection projects currently in the works. The delegation will testify further on the impact of such a consideration.

We further offer support for the Following Bills:

- Adopting a Balanced Budget
- Truth in Budgeting
- Revise the Wetlands Act
- Revise the Endangered species Act

With that brief summary, let me introduce the delegation.

- Sally Johnson, Mayor Pro-Tem for Kansas City, Missouri
- John Mendez, Asst. City Administrator, Kansas City, Kansas
- Don Huffman, President of Phoenix Towing Company, Clayton, Missouri
- Chuck Owsley, City Engineer, Kansas City, Missouri
- Wayne Moody, Asst. City Engineer, Kansas City, Kansas
- Frank Poggo, Asst. Director of Water, Kansas City, Missouri
- Don Hurlbert, Exec. Director, MO-ARK Association, Raymore, Missouri

PREPARED STATEMENT OF MAYOR PRO TEM SALLY JOHNSON, CITY OF
KANSAS CITY, MO

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

I am Mayor Pro Tem Sally Johnson, representing Mayor Cleaver, the City Council, and the citizens of the City of Kansas City, Missouri. I am here today representing the City in support of four vital flood control projects. The metropolitan Kansas City area is presently receiving federal funding for these very important projects. These four projects are the key to revitalization of four of our most flood-prone industrial and commercial areas. These projects are:

1. The Blue River flood control project, mouth to 63rd Street;
2. The Turkey Creek basin flood control feasibility study;
3. The Upper Blue River, Dodson flood control study; and
4. The Swope Industrial Area flood control reconnaissance study.

The twelve-mile long Blue River flood control project has been under construction since 1983. Soon construction will start on another vital segment of this project. This new phase is through the center of one of our most critical and most important industrial areas. The project will be about 45% complete when this new phase is finished in early 1997. Additional phases of this vital project are scheduled to start construction in 1997, 1999, and the year 2000. Kansas City, Missouri, has already identified and appropriated its share of the funding for the Blue River flood control project. We stand ready to proceed with the project and urge the committee to continue the funding for this extremely important project.

The Turkey Creek basin feasibility study has been underway since 1989. Turkey Creek is a small bi-state drainage basin which undergoes frequent flooding from two sources. Flooding can and does occur from either or both of these sources, either concurrently or in sequence. This basin includes some of the most valuable commercial and industrial property in both Kansas City, Missouri, and Kansas City, Kansas. Turkey Creek has been flooding about once every three years for the past fifteen years. Each time the water rises more and more damage occurs, and more and more businesses close. More and more jobs are lost, and more and more citizens become discouraged and move out of the area for good. The last flood occurred in July 1993 and caused more damage than ever before. The flood water entered the Central Industrial District and our Kemper Arena/American Royal Complex and caused several million dollars in damage. History tells us that the next flood will occur shortly, perhaps this year, perhaps next. I urge you to continue the funding for this project so that the citizens of both Kansas Cities may see the end of these recurring floods.

The Upper Blue River (Dodson) feasibility study is complete and presently under review. Soon a decision will be needed on whether to proceed with the project or not to proceed. Kansas City, Missouri, is participating in this decision along with the Corps of Engineers. This project, like the others, involves another of our large industrial areas. The City cannot afford to provide the much-needed flood protection to this area or any other area without your assistance. We ask you to stand ready to provide that assistance on this project when it comes before you for approval and funding in the future.

The last project is a reconnaissance study of the Swope Park Industrial Area. This is a small industrial area located between the Blue River project and the Dodson project. The study began in 1994 and should be complete late this year. We again ask your support and continued funding of this vital project.

In addition to these projects, there are two other items of great concern to Kansas City.

First is the Administration's plan to change the mission of the Corps of Engineers by changing the criteria for their involvement in flood control projects. The criteria requires the project to have more than 50% of the water to come from outside the state where the damage is occurring, a benefit to cost ratio of 2:1, and would limit federal participation to 25%. This plan, if implemented, would eliminate all current and any future flood control projects in Kansas City. We ask that you oppose this proposed plan.

Second is the Corps' "Preferred Alternative" contained in the Draft Environmental Impact Statement for the Missouri River Master Water Control Manual. The proposed changes in the operation of the Missouri River would have serious economic and physical impacts on Kansas City, and we ask that you support the complete withdrawal of the "Preferred Alternative."

In closing, the City of Kansas City, Missouri, and its citizens appreciate your assistance and support on these important projects and urge your continued support by providing full funding as requested.

RESOLUTION NO. 95730 /

To express the City's vigorous and continued support of the Turkey Creek Flood Control Project.

WHEREAS, the City of Kansas City, Missouri, has sought adequate flood protection for the Southwest Boulevard and Central Industrial District areas since experiencing major flooding in 1977 and 1983; and

WHEREAS, in 1989, an agreement was made between the United States Army Corps of Engineers, the City of Kansas City, Missouri, and the City of Kansas City, Kansas, to mutually share the costs to find a solution to the flooding problems; and

WHEREAS, in May, 1990 and in July, 1993, additional disastrous floods struck the Turkey Creek Watershed, setting new record flood crests and causing economic and physical losses in the millions of dollars; and

WHEREAS, the neighborhood and business associations in the Turkey Creek Watershed have been and continue to be very supportive of the flood control project; and

WHEREAS, the cities and the federal government combined have already expended in excess of \$2.1 million on the Turkey Creek Flood Control Study; and

WHEREAS, the completion of the project will require substantial annual funding from both federal and city sources; NOW, THEREFORE,

BE IT RESOLVED BY THE COUNCIL OF KANSAS CITY:

Section A. That the Mayor and Council hereby express their intent to provide adequate funding to complete the City's obligations in relation to the study and eventual construction of the Turkey Creek Flood Control Project.

Section B. That the City will strongly encourage congressional representatives to continue their support of this project in future federal budgets.

Section C. That the City actively supports the U.S. Army Corps of Engineers in its efforts to obtain timely federal funding and to complete the project as rapidly as possible.

~~EMANUEL CLEAVER II, Mayor~~

Catherine J. Becker

City Clerk

By

Paul M. D.

City Clerk

MAR 09 1995

PREPARED STATEMENT OF JOHN J. MENDEZ, ASSISTANT CITY
ADMINISTRATOR, CITY OF KANSAS CITY, KS

My name is John J. Mendez. I am the Assistant City Administrator for the City of Kansas City, Kansas, a City with a population of 148,176 people. I am pleased to have this opportunity to offer testimony to this subcommittee about issues that directly affect the citizens of Kansas City, Kansas.

Our City is very concerned about what we're reading in the Corps of Engineers so called "Preferred Alternative" and especially in the Draft Environmental Impact Statement for the Missouri River Water Control Manual. We believe that the proposed changes would have a significant negative impact on our community.

Our biggest concern of course is the increased exposure to flooding. The Flood of 1993 is still very fresh in our minds and we don't want to see anything done to the River that may increase the level of the water during a flood event, or the length of time each year that our community could be subject to flooding.

We had substantial damage in the July 1993 flood. We lost about 400 residential structures. This means a lot more to us than just a loss of tax base -- we're talking about people being permanently forced from their homes, and their lives being turned upside down. We don't want any more of that for our people.

We had a lot of damage to our infrastructure. Our streets, bridges, sewers, water treatment plant and public buildings sustained over \$5.75 million in damage. Fortunately, FEMA has enabled us to recover a majority of those funds.

Our City staff worked over 84,000 hours in damage prevention, damage assessment, and clean-up activities. That time away from their regular duties will never be fully recovered.

What these figures don't reflect is that three of our largest industrial districts which total 6,100 acres and comprise nearly 23% of our total tax base were at extreme risk for an extended period. These areas are fortunately all protected by levees and flood walls and never did flood. However, the flood control structures were within 12" to 18" of being overtopped! There were some mighty anxious moments for our citizens.

Our City Council had to make some real tough decisions and ordered evacuation of each of these districts for about a week during the peak of the flood. This required shutting down businesses, factories, and industries. Because one of the districts, the Armourdale District has mixed land-use, it required the evacuation of around 4,500 residents along with approximately 400 businesses.

We fear that the Corps of Engineers so called reorganization will eventually lead to turning control of all reservoirs on the Kaw River over to the state of Kansas. With the Flood of 1993, we have seen the very high level of professional expertise necessary to control the timed releases of waters from the many reservoirs on the Kaw River, and coordinate those releases with the backwater effect of a major flood on the Missouri River. The Flood of 1993 taxed the Corps of Engineers hydrologists. The City does not feel that the State of Kansas now has or in the future will be able to match the Corps of Engineers present level of expertise.

Overtopping of the flood levees did not occur, but the ground water table in those industrial areas rose dramatically, and water backed up through the sewer system. When the flood waters subsided, sewers collapsed, trenches failed, and sink holes became common place. We had a couple of blocks of one street that just sunk about 8 feet. Some areas looked like a war-zone without ever having actually been flooded.

We could not have tolerated any greater river elevation without tremendous devastation to our industrial community. We are not interested in more water being released from the upstream reservoirs in the spring or expanding the period of time that our City is exposed to flood potential. That is not in the best interest of our City.

We have other concerns about the Water Control Plan revision. The shortened barge season as proposed would have a negative effect on the economy of the area. Many products are most economically transported by barge, and the shortened season would force producers to use other modes of transportation at a higher cost. The higher costs are passed on to our citizens and industries. The City has a direct interest in this because we have our own grain elevator and dock. It isn't a large money maker for us, but I don't see how we could keep it in service if the usage goes down because of the shortened barge season.

In addition to our concerns about the high water period in the spring, we're also concerned about low flows in the Missouri during fall and winter. This could negatively effect our electric power and water plant intake, which came dangerously close to going dry a few winters ago. Low flows also could be detrimental to some large industries that depend on river water for industrial use, as well as our wastewater effluent discharge and the resulting water quality impact.

I can understand people in the Dakotas and Montana wanting to utilize the Missouri River water differently to achieve what they feel is better recreational usage and environmental protection. But I say, let's not lose sight of why we have the present system and that the primary functions of the current plan according to the law is -- navigation and flood control. These items are vital to the continued well-being of Kansas City, Kansas.

Additionally, the Lower Turkey Creek Drainage Basin has long been a concern to the City of Kansas City, Kansas, its residents, and its merchants. The repetitive flash flooding that has occurred, and the increasing frequency of those occurrences are of grave concern to us all.

This older fully-developed urban area has suffered extensive damage to private property and public infrastructure numerous times in recent years as upstream development

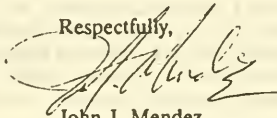
in other jurisdictions have exacerbated the situation. Many of the businesses and homeowners can not continue to fight these devastating occurrences.

As a related but separate issue, the City of Kansas City, Kansas has been working and cooperating with the Corps of Engineers on reconnaissance and feasibility studies for the Lower Turkey Creek Basin for over seven years. As a local co-sponsor, the City has provided manpower, in-kind services, and a substantial financial contribution to the very complex and difficult feasibility study. The current schedule for completion of this study is in 1996.

The City of Kansas City, Kansas will continue to support and assist in this project in every way within our power and means. We consider this to be a priority project with substantial benefits on both sides of the State boundary. It is our hope that with a continued partnership between the local co-sponsors and the federal government that the construction of these very necessary improvements can be initiated later in this decade.

I wish to thank the subcommittee for this opportunity to offer testimony on these very important issues. Thank you.

Respectfully,



John J. Mendez
Assistant City Administrator

RESOLUTION NO. 38088

WHEREAS, the Lower Turkey Creek Drainage Basin has long been a concern to the City of Kansas City, Kansas, its residents, and its merchants; and

WHEREAS, the Lower Turkey Creek Drainage Basin is subject to repeated flash flooding, which has occurred with increasing frequency; and

WHEREAS, the Drainage Basin is an older fully-developed urban area, which has suffered extensive damage to private property and public infrastructure numerous times in recent years, with upstream development in other jurisdictions exacerbating the situation; and

WHEREAS, many of the homeowners and business owners in the Drainage Basin are financially unable to withstand the continued flooding; and

WHEREAS, the City of Kansas City, Kansas, has been working and cooperating with the Corps of Engineers on reconnaissance and feasibility studies for the Drainage Basin for over seven years, and the City, as a local co-sponsor, has provided manpower, in-kind services, and a substantial financial contribution to the complex and difficult feasibility study, which is scheduled for completion in 1996; and

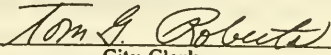
WHEREAS, the City of Kansas City, Kansas, is prepared to continue to support and assist in this project,

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF
KANSAS CITY, KANSAS:

That the City of Kansas City, Kansas, considers this project a high-priority project with substantial benefits for both Kansas and Missouri and fully supports a continued partnership between local co-sponsors and the federal government to construct the necessary improvements

in the Lower Turkey Creek Drainage Basin later in this decade to control future flooding and to reduce the hardship on the residents of the basin.

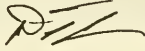
ADOPTED BY THE COUNCIL OF THE CITY OF KANSAS CITY, KANSAS,
THIS 9TH DAY OF MARCH, 1995.



City Clerk

MEMORANDUM

TO: Mayor Joseph E. Steineger, Jr.
City Council Members

FROM: David T. Isabell, City Administrator 

DATE: March 20, 1995

SUBJECT: RESOLUTION SUPPORTING H. R. 842 "TRUTH IN BUDGETING ACT"

Attached you will find a resolution supporting the passage of H. R. 842, the "Truth in Budgeting Act," which provides for removal of the Transportation Trust Funds from the federal General Fund Budget. The MO-ARK Association has requested the city's endorsement in this regard so that they may present it as part of their testimony before Congress this month.

Passage of H. R. 842 will allow for the use of the trust funds for much needed infrastructure improvements, as was originally intended, rather than as concealment for General Fund Budget deficits.

I therefore recommend that the attached resolution be adopted during the City Council meeting on March 23, 1995.

RESOLUTION NO. _____

WHEREAS, the Highway Trust Fund, the Aviation Trust Fund, the Inland Waterways Trust Fund, and the Harbor Maintenance Trust Fund are wholly user financed and do not contribute one dime to the federal deficit; and

WHEREAS, currently a \$33 billion cash balance (\$18.5 billion unobligated balance) is languishing in these trust fund accounts as an accounting measure designed to mask the actual size of the federal deficit and federal spending in other areas; and

WHEREAS, every time a motorist puts gas in the tank or a traveler buys an airline ticket, user fees are paid into the Highway and Aviation Trust Funds, and Congress imposed these fees and other taxes with the assurance to the American public that they would be spent on infrastructure improvements; and

WHEREAS, economists agree that investment in infrastructure helps productivity, creates jobs and is essential for economic growth, and infrastructure spending is the one area that has widespread public support and actually provides a return on taxpayer investment; and

WHEREAS, by combining these trust funds with the federal General Fund Budget, these Trust Fund balances have accrued at the expense of billions of dollars in productivity and safety; and

WHEREAS, H. R. 842, the "Truth in Budgeting Act," will remove these Trust Funds from the General Fund Budget and restore integrity to the Trust Funds, which are user financed, self-supporting, and directed at specific needs, as well as to the General Fund Budget, whose real deficits are currently masked by these Trust Funds;

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF
KANSAS CITY, KANSAS:

That the City of Kansas City, Kansas, urges Congress to enact H. R. 842, the "Truth in Budgeting Act," to take the Transportation Trust Funds out of the General Fund Budget, thereby putting the "trust" back into the Trust Funds.

ADOPTED BY THE COUNCIL OF THE CITY OF KANSAS CITY, KANSAS,
THIS 23RD DAY OF MARCH, 1995.

City Clerk

PREPARED STATEMENT OF RON BISHOP, GENERAL MANAGER, CENTRAL
PLATTE NATURAL RESOURCES DISTRICT

Mr. Chairman ... Committee Members:

My name is Ron Bishop and I am general manager of the Central Platte Natural Resources District, located in South Central Nebraska. We are a local subdivision of State Government with a wide range of resource management responsibilities ranging from flood control to ground and surface water quality.

I appreciate the opportunity to present testimony to the Committee and want to tell you about two projects: one, a flood control project that involves federal, state and local governmental responsibilities and cost-share; and two, a groundwater pollution cleanup project that is a federal responsibility. There is an overlap in needs of these two projects, and we have an opportunity to coordinate the needs of these two projects in a manner that will save *federal time and tax dollars*.

The first project is the "Flood Control for Wood River at Grand Island, Nebraska." This committee and Congress have been funding, with fifty percent local cost-share, a U.S. Army Corps of Engineers feasibility study of the Flood Control needs of Grand Island, Nebraska, and vicinity, since "The Interim Reconnaissance Study," completed in July 1988, identified a potentially feasible solution to the flooding problems.

The Corps completed the "Feasibility Study" in April 1993, and found the project to be extremely feasible with a benefit-cost ratio of 2.1:1. A total of 1,755 structures, with a total value of \$218,901,000.00 would be protected from floods just within the city limits of Grand Island. Additionally, there would be thousands of acres of crop and pasture land and hundreds of suburban homes and structures, as well as several million dollars worth of public property and utilities, protected.

All of that can be accomplished with a flood control project that would construct seven miles of floodway (two miles of minor, smaller floodway and five miles of major floodway), all at a cost currently estimated at \$10,200,000.00. The project is presently in "final design" by the Corps, with "final design" scheduled to be completed on February 13, 1996, just four and one-half months into next fiscal year (Fiscal 1996). The Corps' flood control program allows federal cost-share of up to seventy-five percent. The local sponsors, however, have agreed to a non-federal cost of fifty percent of construction instead of the more normal twenty-five percent.

The next step in the project after "final design" is for the local sponsors (which are the Central Platte Natural Resources District, City of Grand Island, Hall County and Merrick County) to acquire the necessary right-of-way as part of the fifty percent non-federal share. According to the Corps of Engineers' schedule of activities, the local sponsors work on right-of-way is scheduled to begin on August 28, 1995, with actual acquisition scheduled to begin December 18, 1995, just two and one-half months into the next fiscal year (Fiscal 1996). This would be followed by relocation of utilities (highway bridges, etc.) by the local sponsors, which is scheduled for a July 31, 1995, start and a July 26, 1996, completion, and a modification of a railroad bridge to be done by the Corps as part of the federal fifty percent, with a start date of April 8, 1996, and a completion date of November 22, 1996. The only way that schedule, which has already slipped nearly three years, can be met is if Congress authorizes the project and appropriate funds for Fiscal 1996 for a construction start.

The second project is a federal project of cleanup of contaminated groundwater as a result of operations at the Cornhusker Army Ammunition Plant. RDX and TNT used in munitions during the wars contaminated groundwater and, over time, moved out from under the Plant. Now, a plume of contaminated water extends over four miles long beneath private property and the City of Grand Island. The remediation plan calls for the contaminated water to be withdrawn, treated with activated charcoal, and pumped by pipeline to the Platte River. The route of that pipeline to the Platte is adjacent to the floodway route. The Army plans to have its design completed by December 1995, and it will be needing right-of-way for the buried line immediately afterwards because construction is planned for calendar year 1996.

The timing on both projects is right to be able to combine the right-of-way acquisition process on both projects into one effort, and, quite feasibly, we could even utilize part of the flood control project's right-of-way for the Army's right-of-way. Either would be a savings of federal funds as well as federal time and effort.

To accomplish this, we need Congress to authorize the "Flood Control for Wood River at Grand Island, Nebraska" project *and* to appropriate funds for a construction start. We need *both* before the Corps is allowed, by its regulations, to enter into a project agreement with us as the local sponsors; and without the signed agreement and commitment, we cannot acquire the necessary right-of-way without putting at risk hundreds of thousands of local tax dollars.

We would hope that you would all lend your strong individual and committee support so we can not only get this very worthy flood control project started, but also can coordinate right-of-way efforts with the Army and save federal time and tax dollars.

Thank you.

PREPARED STATEMENT OF DONALD E. HUGHES, PRESIDENT, TWIN LOUPS
RECLAMATION DISTRICT

Mr. Chairman and Members of the Committee:

My name is Donald E. Hughes, President of the Twin Loups Reclamation District, from Scotia, Nebraska. Since I am unable to be in Washington, D.C. this year to appear before this committee, I am submitting this written testimony in support of the North Loup Division, and to seek your continued support of funding in the amount of \$900,000 for Fiscal Year 1996. This is the amount requested by the Bureau of Reclamation needed to timely complete our project.

This amount is required to also complete O & M work not covered in the original contracts as well as on-going D & MC needs to promote the timely completion of our project so we can meet our repayment obligations.

The North Loup Division is located in Central Nebraska. When completed we will serve approximately 53,000 acres along the Loup Rivers from Southwest of Ord, Nebraska to the Fullerton, Nebraska city limits.

Initial service began on Block I in June 1987, (approximately 19,000 acres), Block II, (approximately 10,000 acres), in 1989, Block III, (approximately 6,000 acres), in 1992 and the final Block IV, (remaining acres), to receive service this season.

Our supply of storage water is second to none. The Calamus Lake above Virginia Smith Dam is now within 6 feet of full stage and should be filled within the next 60 days, weather permitting. Davis Creek Dam is about 31 feet below full stage now, due to repair work being done below the dam on the toe drain, final filling of the lake will be completed this Spring.

We are anxious to try out the Kent Diversion facility, located on the Loup River west of Burwell, Nebraska this spring. As this component, completed last year, has never been used. It should allow us to fill Davis Creek Dam within a 90 day time frame. A full supply of water in Davis Creek Dam is essential to assure sufficient supply for irrigation in the Fullerton Sections I, II, III and in the Elba area. We are unique in that all flows in the Calamus and Loup Rivers are either spring fed or Nebraska run off which assures us of that constant flow that varies only slightly under even extreme drought conditions.

I am privileged to report all major components of our project have been completed and the Bureau is in the final stages of inspection. However we as a District have never had the opportunity to deliver water on the final phase of construction on Fullerton Canal Sections. We plan to serve this area for the first time this year barring any unforeseen problems. I might add, "a day we have all been anxiously awaiting", since the start of construction in 1976 on relocation of roads inundated by the new lake. The actual Ground Breaking for the 'Virginia Smith Dam' took place in June of 1980.

As of the 1st of January, 1995, the project was reported as 96% complete.

We sincerely appreciate this committee's past support of our efforts to complete this project. In this regard, Mr. Chairman and members of this committee, we wish to thank you and request your continued support needed for its completion.

PREPARED STATEMENT OF SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

The South Dakota Department of Environment and Natural Resources (the Department) respectfully submits this testimony to the Committee on Appropriations, Subcommittee on Energy and Water Development.

The following provides the FFY 1995 conference allowance appropriations, the Administration's FFY 1996 budget request, and South Dakota's funding needs for water development. The FFY 1996 South Dakota budget requests will ensure the continued progress of ongoing U.S. Bureau of Reclamation and U.S. Army Corps of Engineers, Civil Works projects and studies.

BUREAU OF RECLAMATION

	FFY 1995 CONFERENCE <u>ALLOWANCE</u>	FFY 1996 PROPOSED <u>BUDGET</u>	FFY 1996 SO.DAK.'s <u>REQUEST</u>
Construction			
Belle Fourche Unit	\$3,064,000	\$3,802,000	\$4,302,000
Mni Wiconi RWS	14,500,000	10,500,000	47,827,000
Mid-Dakota RWS	\$4,000,000	\$2,500,000	23,394,000
Oahe Unit	\$ 100,000	\$ 80,000	\$ 80,000
General Investigations			
BH Water Mgmt Study	\$ 100,000	\$ 150,000	\$ 150,000
Tri-County	\$ 150,000	\$ - 0 -	\$ 350,000
LA-W/Marty II Demo Prog	\$ 250,000	\$ - 0 -	\$ 500,000
Operation & Maintenance			
Mni Wiconi Project	\$ 492,000	\$2,404,000	\$2,404,000
Angostura	\$ 68,000	\$ 65,000	\$ 65,000
Keyhole	\$ 100,000	\$ 92,000	\$ 92,000
Pactola	\$ 110,000	\$ 110,000	\$ 110,000
Shadehill	\$ 62,000	\$ 70,000	\$ 70,000
Misc. Activities	\$ 339,000	\$ 509,000	\$ 509,000

The Department supports the Bureau of Reclamation's General Investigation budget request of \$150,000 for the **Black Hills Water Management Study** and the \$3,250,000 Operation and Maintenance funding level for continued public safety, access, and recreational activities in the Bureau of Reclamation's reservoir areas in South Dakota.

A funding level increase is requested for the Belle Fourche Unit, the Mni Wiconi RWS, and the Mid-Dakota RWS. These funding increases are supported by the Department and the local project sponsors.

The Department requests an increased funding level to \$4,302,000 from the Administration's funding level of \$3,802,000 for the **Belle Fourche Unit**. The additional \$500,000 funding capacity, will ensure the rehabilitation contract on the Johnson Lateral will continue on schedule. The rehabilitation work on the Johnson Lateral will reduce the high seepage rate and will reduce the Belle Fourche Irrigation District's dependence on storage in the Keyhole Reservoir in Wyoming. The State of South Dakota is committed to providing the nonfederal matching requirements of the project. The South Dakota Legislature authorized the State's nonfederal cost share of \$4.0 million and provided \$1.0 million in funding assistance in 1995.

The Department and the **Mni Wiconi Rural Water System** project sponsors, three Indian Tribes and a non-Indian water system, request an increase to \$47,827,000 from the Administration's funding level of \$10.5 million. The full construction capability of the Mni Wiconi Rural Water System would support the \$47.8 million for FFY 1996 funding. The increased funding level will be needed to initiate construction of the essential features of the project: the water treatment plant, intake facilities and core system pipelines needed to supply Missouri River water. Congress mandated completion of the project by the year 2003. Therefore, Subcommittee action is needed to increase the FFY 1996 appropriations to complete the project on schedule. While the FFY 1996 budget was being prepared, legislation to expand the Mni Wiconi project was being considered in Congress. Until the amendment language was agreed upon, construction on the core system was deferred. The sizing of the core facilities to meet water demands depended on Congressional approval of the expanded service area. Congress and the President approved that legislation to include the Rosebud and Lower Brule Indian Reservations in October 1994. It is critical that the project maintain its aggressive construction schedule of the treatment plant, intake, and core pipeline to serve the expanded service area. The core system will connect the distribution facilities that were built during the first two years of construction. In addition the core system will serve an additional 1,207 water users when over 1,000 miles of distribution facilities will be constructed by the end of FFY 1995.

The Department and the **Mid-Dakota Rural Water System** request an increase to \$23,394,000 from the Administration's funding level of \$2.5 million. A contract was awarded in August 1994 for the Oahe water intake and pump station and construction began in October. The contract for the Oahe water treatment plant was awarded in October 1994. Construction of the foundation and earthwork were initiated in March 1995. The increased funding level would be used to complete these contracts and award the main pipeline contracts as well as distribution systems for Canning, Highmore West, and Onida. These three service areas are scheduled to begin construction at the start of FY 1996. To begin water deliveries in

1997, these project facilities will need to be constructed. Mid-Dakota and the State is encouraged by the Administration's inclusion of a funding level for FFY 1996 appropriations. However, the increased funding level is needed to keep the current contracts active. Additionally, Mid-Dakota is completing engineering and design work on more than \$13.3 million worth of main pipeline and storage facilities. As soon as funds are available, the contracts can be bid and awarded.

Additional funding needs have been identified for Reclamation's General Investigations activities in South Dakota. A federal appropriation write-in is requested for the Lake Andes-Wagner/Marty II Demonstration Research Program and the Tri-County Rural Water System. The Department requests a write-in of \$500,000 to support Reclamation's planning efforts for the Lake Andes-Wagner/Marty II Demonstration Research Program. A write-in appropriation of \$350,000 is requested for the Tri-County RWS to complete a Feasibility Study assessing the alternatives to meet the drinking water needs on the Cheyenne River Sioux Indian Reservation and surrounding areas and communities.

CORPS OF ENGINEERS

	<u>FFY 1995 CONFERENCE ALLOWANCE</u>	<u>FFY 1996 PROPOSED BUDGET</u>	<u>FFY 1996 SO.DAK.'s REQUEST</u>
General Investigations			
Big Sioux River, SF	\$ 400,000	\$ 390,000	\$ 390,000
James River Environ	\$ 73,000	\$ 10,000	\$ 10,000
Watertown & Vicinity	\$ 170,000	\$ 20,000	\$ 20,000
Operation & Maintenance			
Gavins Pt/Lewis&Clark	\$5,071,000	\$6,363,000	\$6,363,000
Big Bend/Lake Sharpe	\$5,887,000	\$6,079,000	\$6,079,000
Ft.Randall/Francis Case	\$7,520,000	\$8,520,000	\$8,520,000
Oahe Dam/ Lake Oahe	\$9,610,000	\$9,363,000	\$9,363,000
Cold Brook Lake	\$ 474,000	\$ 190,000	\$ 190,000
Cottonwood Springs Lake	\$ 201,000	\$ 184,000	\$ 184,000
Lake Traverse (SD & MN)	\$ 614,000	\$ 973,000	\$ 973,000
Construction, General			
Missouri National Recreational River, NE & SD	\$ 100,000	\$ 35,000	\$ 35,000

The Department supports the U.S. Army Corps of Engineers General Investigations, Construction, and Operation & Maintenance proposed budget requests for South Dakota activities. The proposed funding levels will meet the needs of South Dakota's water resource projects and continued operation and maintenance of the four mainstem dams.

We appreciate the opportunity to submit this written testimony on behalf of the water resource development projects and water facilities contained in the U.S. Bureau of Reclamation and U.S. Army Corps of Engineers FFY 1996 budget.

PREPARED STATEMENT OF LEO HOLZBAUER, EXECUTIVE DIRECTOR, LAKE
ANDES-WAGNER WATER SYSTEMS, INC.

Mr. Chairman and members of the Subcommittee:

This is testimony for the Lake Andes-Wagner/Marty II Research Demonstration Project, which is located in South Central South Dakota. We thank you for this opportunity to submit testimony regarding this important Research Project and the funding required to carry out this project in FY96, so the required information can be gathered and the final report submitted to Congress.

The Lake Andes-Wagner/Marty II Research Project is a 5,000 acre research project required and authorized by Congress to determine the drainage properties of glacial till soils; the effects of water movement within these soil types; and wetland and wildlife enhancement activities which will be implemented in the project area. Research results are needed in these areas, not just for our local project in the area, but for many other parts of South Dakota and the United States.

The State of South Dakota, Yankton Sioux Tribe and the Lake Andes-Wagner Water Systems, Inc. sponsors have already contributed in excess of 2.5 million dollars of their own money, completing the Environment Impact Statements and working with Congress to have this priority project authorized and signed into Law in the 102nd Congress.

The State of South Dakota and the local project sponsors are requesting 500,000 dollars of Federal funding to support the Bureau of Reclamations's planning efforts, for FY96, for this essential Research program. For Reclamation to proceed with this Research as required by Congress and in accordance with the schedule and estimates included in the Plan of Study, we requested this funding amount.

The Bureau of Reclamation has testified before Congress in support of this Demonstration Project. This support was based largely on the geographically broad application, of the findings, for the operation of Reclamation irrigation programs, other Federal and State programs and the Private Sector programs throughout the United States particularly in areas where water supply or return flow quality problems exist.

Basis of the Demonstration include:

1. Using minimal water application rates to reduce water consumption and drainage return flows. Results to be measured include: soil chemistry changes, water movement in glacial till soils, water quality in the reduction of water consumption requirements for crop production.

2. Field scale testing of best management practices for pesticide, herbicide and fertilizer applications and alternative farming practices as they relate to ground water quality and crop production.
3. Economic evaluation of the production of alternative non program crops with the use of the above methods and practices.
4. The enhancement of wetlands and fish and wildlife habitat as conjunctive use of project water and facilities.
5. Practical application of technology for the removal of chemical constituents, primarily selenium, from return flows.

The traditional Reclamation concept of irrigation on these kinds of soil indicates that long term application of water may be harmful to the land. However, presently many acres of land are under irrigation in South Dakota. Recent research indicates that the traditional Reclamation concept of irrigation may not be valid. Therefore, it is essential to determine if long term irrigation could be sustained or not on these types of soils.

The information gained from this drainage Research project is also needed to determine safe construction guidelines of municipal solid waste landfills, rubble waste disposal sights and composting facilities. The ground water movement around these types of facilities has to be known, so sound judgements can be made, to assure that contaminants will not reach our lakes, streams and rivers, polluting them, harming our nations water supplies, killing our God given fish and wildlife species and ruining our precious wetlands.

The U.S. Fish & Wildlife Service testified as to the scientific benefits from the Research project in carrying out their nationwide contaminants program. The USGS and EPA testified as to the transferability of the study findings to areas with water quality questions around the country. (Refer to hearing record dated June 19,1990.)

This project will be ideal for these needs because it may be the only return flow/water quality study in an environment which does not already have remedial clean-up actions and where variables can be minimized. The Demonstration Project will be tightly controlled to maintain the quantity of return flows at a manageable level.

The Demonstration Project will provide the needed information to allow a sound decision on how or if to proceed with the Lake Andes-Wagner/Marty II Project. The Demonstration phase will also allow a much closer determination of costs for the final project.

We have over 300 signatures, from the project area, in support of this Research Project. This project has very high priority in our area, so our people will be assured that we are using the precious God given Natural Resources, our water and soil, in an environmentally safe and sound manner, benefiting God's people, His environment and His fish and wildlife.

Mr. Chairman and members of the committee, thank you again for allowing us this opportunity to express the needs in building our infrastructure economically and environmentally sound while moving the rural communities ahead safely for the betterment of our Nation.

THANK YOU!

PREPARED STATEMENT OF KURT PFEIFLE, MANAGER, MID-DAKOTA RURAL WATER SYSTEM

Mr. Chairman and Members of the Committee:

I am Kurt Pfeifle, Manager of the Mid-Dakota Rural Water System. I would like to submit testimony for our request for appropriations in the Federal Fiscal Year (FY) 1996 Energy and Water Development Appropriations Bill.

The Mid-Dakota project was authorized in October 1992, under Public Law (PL) 102-575. The financial package authorized for Mid-Dakota included an \$85 million grant, and a \$15 million federal loan. (The loan bears interest equal to the government's cost of borrowing.) The State of South Dakota has also committed \$8.4 million in grants as their contribution to the project. Please note that over 21 percent of the project will be funded through sources other than federal grants.

In fact, the agreement recently endorsed by Mid-Dakota and the U.S. Bureau of Reclamation (USBR) would provide for repayment of federal funds at or above the 15% level currently authorized by the federal government.

Mid-Dakota wishes to thank this committee for its support over the past two years. In FY 94, Mid-Dakota received \$2 million in federal funding, which was subsequently reduced to \$1.5 million through underfinancing. In FY 95, we received a \$4 million appropriation. Again, the amount was reduced through underfinancing, to \$3.6 million. However, with these monies and funds previously appropriated by the State of South Dakota, we have been able to make a substantial start on project construction.

FY 96 is the first year since the project's authorization in which Mid-Dakota has received the administration's budget support. President Clinton has included the Mid-Dakota project in the administration's budget at a level of \$2.5 million. This is a far cry from where we need to be. However, we are grateful to be recognized as a boni fide project.

We are seeking a federal appropriation of \$23.394 million in FY 1996. Our total outlays for FY 96 are projected at \$24.394 million. The difference will come from the State of South Dakota, whose legislature recently approved \$1 million for Mid-Dakota in 1996. To date, the state has provided Mid-Dakota \$6.370 million. This total includes \$100,000 in 1988, \$50,000 in 1989, \$75,000 in 1990, \$145,000 in 1991, \$1.5 million in 1992, \$2.5 million in 1993, \$1 million in 1994, and \$1 million in this legislative session of 1995.

With the federal appropriations we seek today, we will be able to proceed with construction of the following project components, listed in order of their priority:

- ① **Contract 1-1: Oahe Intake and Pump Station.** Construction is currently underway. This contract was awarded last August to Industrial Builders, Inc., of Fargo, N.D., for a bid price of \$3.958 million. The value of this contract represents a savings of approximately \$500,000 from our budget estimate. This contract is more than 31% complete. We anticipate needing \$568,000 to complete construction of the intake and pump station in FY 96.
- ② **Contract 2-1: Oahe Water Treatment Plant.** Construction is currently underway. This contract was awarded last October to John T. Jones Construction Company, Fargo, N.D., for a bid price of \$9.920 million. This represents a savings of about \$3.5 million from our budget estimate. This particular contract has an 800-day completion time and is over 3% complete. We will need \$4.950 million to continue construction on that facility in FY 96.
- ③ **Contract 3-1A: Raw Water Line.** In FY 95, we anticipate awarding a contract for the raw water line between the pump station and the water treatment plant. This line will consist of approximately 4 miles of 30" diameter ductile iron pipe. We have budgeted outlays of \$677,000 for this line in FY 96. The total cost for the raw water line is estimated at \$1.177 million.

Funding for the three project components above is absolutely necessary if we are to continue with and complete the contracts awarded to-date. Although the raw water line contract has not yet been awarded, this component is crucial to installation and testing of the water treatment plant equipment. Contract amounts do not include project administration, consulting or other indirect costs.

- ④ **Contract 3-1B: Treated Main Line.** This contract will be awarded in FY 96. It consists of intermittent stretches of 24" and 30" pipeline. This segment of the main line will run for about 22 miles, from the water treatment plant to a valve near Blunt, S.D. We have identified a need of \$4.273 million for FY 96. This contract will continue into 1997, at a total estimated cost of \$5.730 million.
- ⑤ **Contract 3-1C: Treated Main Line.** This segment of the main line begins at a valve at Blunt, and runs to the Highmore, S.D., water storage tank, a span of 26 miles. We have identified a need of \$4.796 million for FY 96. This contract will continue into 1997, at a total estimated cost of \$6.223 million.
- ⑥ **Contract 5-1: Highmore Water Storage Tank.** The cost of constructing this 1.5 million gallon tank is estimated at \$1.345 million, with completion scheduled in FY 96.

All above contracts must be completed before we can begin water deliveries. Completion of these facilities will also be necessary to perform surge tests and tests on high service pumps so that Contract 2-1 can be closed out early in 1997. With their completion, we plan to begin work on the 3 rural service areas described below:

- ⑦ **Service Areas Scheduled for FY 96 Construction.** The first of these is the Canning distribution area, for which we propose outlays of \$2.329 million in FY 96. Total contract cost is estimated at \$4.278 million.

The next service area to be constructed is the Highmore West distribution area, which requires an FY 96 outlay estimated at \$567,000. Total contract cost is estimated at \$1.039 million.

The last rural service area for which construction is planned in 1996 is the Onida Distribution Area. We anticipate FY 96 outlays of \$1.181 million for this construction, with total contract costs estimated at \$2.018 million.

- ⑧ **Other FY 96 Construction and Project Costs.** With the construction of the Onida distribution area, we will also build the Onida water storage tower. Total cost of that tower, scheduled for construction in FY 96, is estimated at \$403,000.

Mid-Dakota's projected outlays for FY 96 include \$45,000 to be spent for the project's control system, and \$160,000, which has been budgeted for the Operations and Maintenance Center, and for equipment costs. Other outlays totaling \$3 million include planning for future fiscal years and the administration of the project, including administration fees due the USBR, and contingencies.

Our FY 96 request also includes \$100,000 to be spent in developing the wetland enhancement component of the project. Included in this figure is the cost of running a 12" PVC line from the water treatment plant to the Hyde Waterfowl Production Area.

Thanks in large part to the generosity shown by this committee in the past, Mid-Dakota has taken great strides in the development and construction of this rural water project. Most significantly, we have initiated construction of two major project components: the Oahe Intake and Pump Station and the Oahe Water Treatment Plant.

Other accomplishments included signing up nearly 2,500 rural users, such as households, livestock taps, farmsteads and seasonal users. Each user was required to sign a binding agreement and submit a hookup fee. Fees paid ranged from \$320 for a livestock tap, to nearly \$1,000 for a high-consumption farmstead. The average user remitted about \$500 to Mid-Dakota. In total, Mid-Dakota has collected over \$1.2 million from prospective users.

Twenty-two municipalities have also executed water purchase contracts with Mid-Dakota. The most significant of these, the City of Huron, signed a water purchase contract to receive 2 million gallons per day. Other communities include: Agar, Blunt, Broadland, Gettysburg, Harrold, Highmore, Hoven, Iroquois, Lebanon, Miller, Onida, Orient, Osceola, Polo, Ree Heights, St. Lawrence, Tolstoy, Tulare*, Virgil, Wessington, and Yale.

*The City of Tulare is not currently considered in the Final Engineering Report (FER), due to a sparse amount of sign-ups in that area. The City, however, has signed up with Mid-Dakota in hopes that the situation will change and water service to that area will become feasible.

The municipalities above represent a contracted delivery capacity of more than 4 million gallons of water per day. In addition, we've contracted for water deliveries with 26 other large bulk water users, representing more than 300,000 gallons per day.

Mid-Dakota has also completed all of our pre-construction requirements:

- ① A final engineering report was approved and has lain before Congress for 90 days as required by Section 1903 (f) (2) of PL-102-575 Title XIX.
- ② We have completed a water conservation program required in section 1905 (a) through (c) inclusive of PL-102-575, to the satisfaction of the USBR. Mid-Dakota's program meets and, in most cases, exceeds the program specified in PL 102-575.

- ③ Mid-Dakota has met the requirements of the National Environmental Policy Act of 1969 (NEPA) mandated in Section 1903 (f) (1) PL 102-575.
- ④ The USBR has completed the Final Environmental Assessment (FEA) Addendum / Finding of No Significant Impact (FONSI) which was approved March 18, 1994.
- ⑤ A "Determination of No Effect" has been issued by the South Dakota Historical Preservation Officer (SHIPO) for the first-phase facilities to be constructed by Mid-Dakota.
- ⑥ Permits for state highway, railroad and Western Area Power Agency (WAPA) crossings have been acquired for the first phase of construction of the project.
- ⑦ A 9999 acre-foot water right has been obtained from the State of South Dakota.
- ⑧ A Section 10 permit, to construct a water intake at the chosen site in the Oahe Reservoir, has been attained from the United States Army Corps of Engineers.
- ⑨ A repayment agreement has been negotiated between the USBR and Mid-Dakota.
- ⑩ Plans and specifications for contracts 3-1A, 3-1B, 3-1C and 5-1 are complete and have been approved by the State of South Dakota and the USBR.

We continue to seek and acquire easements and sites for project facilities. Easements for the main line, running from the water intake site to the Highmore water storage site, have been obtained. We are now collecting easements on the main line route from the Highmore water storage tank to an area near the Town of St. Lawrence, and we are beginning to collect easements for the line routes in the Canning, Highmore West, and Onida rural service areas. Land has been purchased for the Water Treatment Plant Site and the Highmore water storage tank, and permits have been acquired for the location of the water intake and pump station on Corps of Engineers land.

The area to be served by the proposed Mid-Dakota Rural Water System covers over 7,000 square miles in 10 central South Dakota counties. The project will pipe treated Missouri River water to rural homes, pasture sites, businesses and communities through a network of over 2,700 miles of buried pipe. The nearly 2,500 rural users in 22 communities which have contracted represent a population of about 27,500 residents and over 300,000 head of livestock. Initially, it is anticipated that about 14% of the livestock will use this system's water on a full-time equivalent basis. It is anticipated that livestock use will increase over time. It is also anticipated that additional rural residents and municipalities will contract for water deliveries during construction, and they can be added to this system. This will increase the repayment capability to the federal government.

The major source of domestic water for rural homes, as well as communities in the project area, is poor-quality ground water drawn from the Dakota Sandstone Aquifer and a variety of smaller alluvial or glacial-deposited aquifers. Water from the Dakota formation is generally not acceptable for household use because of high concentrations of total dissolved solids, sodium and sulfates. Water from the shallow aquifers, when considered for household use, rate from marginal to poor, with high concentrations of total dissolved solids, iron and hardness. Reliance on this poor-quality water imposes a continuing regional economic burden, in addition to health-related concerns. Of the 22 municipalities which have contracted, 19 currently have public water systems, and 17 of these rely solely on ground water. For those 17 systems, EPA secondary maximum contaminate levels are exceeded as follows: total dissolved solids, 16; iron, 15; manganese, 14; and sulfate, 12. Hardness exceeds 340 milligrams per liter (or 20 grains per gallon) in 11 systems. Sodium exceeds 270 milligrams per liter in 7 systems. The one ground-water-supplied system which meets chemical standards does so by removing iron and manganese from its shallow well water; however, the shallow well is listed by the state as being vulnerable to surface contamination, as are wells in 5 other municipalities.

One municipality currently treats Missouri River water and meets all EPA maximum contaminate levels. However, their treatment facility is in need of substantial improvement and may have difficulty meeting the new EPA surface water treatment rules.

Huron, the largest single water user, obtains water from the James River and wells. The U.S. Army Corps of Engineers, Eastern South Dakota Water Supply Study, which was conducted in 1979 in response to several Congressional Resolutions, identified the following problems with Huron's water supply: "Quality - surface water very limited during dry years. Backup source of ground water very limited. Quality - variable water quality, often very poor. Ground water of high mineralization." Huron did construct several new wells in 1983 which increased the quantity of highly-mineralized water available. Huron plans to use Mid-Dakota as its base load supply and use existing sources for peaking needs.

The quality of the existing private facilities used by the farms and rural residences is not as thoroughly monitored as is the water supply in communities. Generally though, it is believed that the chemical quality of private supplies is similar to that of public supplies. The water supplies are high in iron, manganese, sodium, sulfate, hardness and total dissolved solids. These high mineral levels cause health problems in humans including diarrhea, digestive complications, and high blood pressure, which can lead to strokes, heart diseases and kidney disease. People on low-sodium diets must install costly distillation equipment or purchase bottled water.

In addition to the high mineral levels, a review of the water quality tests from individual wells within the project area confirms a high occurrence of excessive nitrate levels and bacteria. Forty-two percent of the private wells tested exceed the recommended levels of bacteria and nitrates. This is of particular concern as farm wells are not tested as regularly as are public supplies. Therefore, many people with very young children use distilled water for health reasons.

Earlier, I mentioned livestock figures because agriculture is the predominant source of income in this rural section of the state. Farmers and ranchers in the project area use existing ground water and surface water supplies for their livestock.

The poor water quality causes stress on livestock, resulting in reduced milk production, weight loss, dehydration, and in many cases, death, in young livestock. Primary surface water supplies are stock dams or dugouts which can be good during years of normal or above-normal rainfall. However, the run-off which fills these sources traverses an agricultural area and is contaminated by animal waste and other organic pollutants. Stock dams and dugouts can be a hazardous source of water, not only because of the water quality, but because of other factors as well. During the winter months, ice forms on the surface and must be chopped daily for livestock to access. The livestock occasionally fall through the ice and drown. When water levels are low, during the summer months, livestock also run the risk of becoming bogged in the mud and dying. Based on the experience of other rural water systems in South Dakota, it is anticipated that livestock water use from the system will start out relatively small but will increase over the years as wells fail and as producers come to understand the benefits of improved water quality.

The Mid-Dakota project is considered a high-priority project by the South Dakota Department of Environment and Natural Resources and is listed in the late Governor Mickelson's Water Initiative in the "short-term" category. Mid-Dakota continues to receive strong support and a high-ranking priority in Governor Janklow's administration. The history of state legislative appropriations was detailed earlier in this testimony.

The Mid-Dakota Water Development District has co-sponsored the project with financial and staff support amounting to approximately \$400,000 up to December 1994. The taxes levied by the district come from the area that will be served by the Mid-Dakota Rural Water Project.

The financial contributions of the water users were detailed earlier in this testimony.

In 1993, On-Hand Development Corporation donated 5-1/2 acres of land and a 17,600 square-foot building to Mid-Dakota for use as a permanent office and operations and maintenance center. The value of the property is estimated at \$200,000. They also provided a grant of \$25,000 to be used to improve the office.

A unique provision included with Mid-Dakota's authorization is a wetland development and enhancement component. In conjunction with various federal, state and local agencies, the Mid-Dakota sponsors put together a proposal that will enhance, restore, create and maintain wetland areas. The use of both treated and untreated Missouri River water is envisioned to enhance existing wetland areas. Land acquisition adjacent to existing wetlands and development of constructed wetlands using waste water are also authorized.

The Mid-Dakota Rural Water System represents a contemporary water project designed to alleviate a regional water supply problem. The project has been developed through the cooperation of a diverse group of interests that include, but are not limited to, the local residents, state and federal officials, water interests, public power interests and wildlife groups. All these groups may seem to have different interests, but to survive in rural America in the '90s, we have learned to compromise a little and to recognize and accommodate the other person's needs. This can be seen in the agreement that was reached between Mid-West Electric Consumers Co-op, and the Mid-Dakota project. Under the agreement, the project will utilize Pick-Sloan pumping power for six months of the year.

In conclusion, we ask this committee to continue its strong support of the Mid-Dakota Rural Water System. We understand and approve of the constraints being placed on federal spending, with a view toward balancing the budget. However, with project construction underway, it is vital that we receive a level of funding which will allow us to honor contracts in progress. Insufficient federal funding may lead to default on one or more of these contracts. The result would be loss of jobs, and remobilization at a later date, which would be expensive for us and for the U.S. Government.

May we also point out that Mid-Dakota is a federal project in every sense of the word. Our state is blessed with many things; however, industrial resources are not one of them. Conservatively, over 60% of the project funds will be spent out of state. Ductile iron and steel pipe, meters, valves and PVC pipe resin are being purchased from states like Alabama, Indiana, Texas and Louisiana. We have contractors from North Dakota and a major subcontractor from the State of Washington, and I could go on. The point is, Mid-Dakota will have a ripple effect which will be felt nationwide.

Mid-Dakota has entered into a unique partnership with the federal government. The private sector is planning and constructing this project, with a limited amount of oversight from the USBR. This partnership has worked very well, as has been demonstrated through the bidding and awarding of the first two major contracts, which have come in well under budget. The value of this kind of partnership has also been demonstrated with the completion of the highly successful WEB Water Project, which is operating without federal assistance and is repaying its federal construction loan on schedule, since it's completion in 1991. Your support for the Mid-Dakota project will encourage similar partnerships in the future.

Now that construction has begun, it is important to the people we will eventually serve, and we hope it is equally as important to Congress, that Mid-Dakota be in a position to deliver water as quickly as possible. This would be the most efficient use of the federal and state monies which have already been committed. In order to do that, we need to complete the intake and treatment plant, the raw water line, the main line, and the Highmore tower. This bare minimum structure must be in place, prior to the delivery of the first drop of water.

Please help us deliver that water soon, by approving an appropriation which is as close as possible to the full \$23.394 million we are seeking for FY 96. Thank you very much.

PREPARED STATEMENT OF MNI WICONI PROJECT, SOUTH DAKOTA

1. FY 1996 Budget Request

The Mni Wiconi Project beneficiaries respectfully request third year construction funding for the project in the amount of \$47,827,000 as follows:

Oglala Sioux Rural Water Supply System	
Core Facilities (Intake, Treatment Plant, Pipelines)	\$26,621,000
Distribution System on Pine Ridge	7,450,000
Lyman-Jones/West River Rural Water Systems	6,282,000
Rosebud Sioux Rural Water System	6,602,000
Lower Brule Sioux Rural Water System	872,000
Total Mni Wiconi Project	<u>\$47,827,000</u>

The Administration's budget of \$10.5 million is critically short, and the project needs an increase in FY 1996 of \$37,327,000.

2. Need for FY 1996 Funds

The project beneficiaries respectfully petition the Subcommittee to increase funding for this project from the level proposed by the Administration (\$10.5 million) to the amount needed to maintain the project schedule (\$47.8 million). Congress has mandated completion of the project in year 2003, and the Bureau of Reclamation has approved the *Final Engineering Report*. The report includes the schedule of appropriations that we request and that is needed to complete the project on time. The Bureau of Reclamation, by letter of March 1, 1995, *approved* our FY 1996 plan and stated that it was *...realistic and consistent with the 10-year construction schedule*.

We respectfully submit that our project is unique and that no other project in the Nation has greater needs. Poverty in our service areas is consistently deeper than elsewhere in the Nation. Health effects of water borne diseases are consistently more prevalent than elsewhere in the Nation. In our geographic area water is scarce, and the meager supplies are of the poorest quality. It is incomprehensible at the close of the 20th century to have a region in which social and economic conditions are as devastating. These circumstances are summarized as follows:

► Poverty as measured by annual Indian per capita income from the 1990 Census, (Table 157):

Shannon County (Pine Ridge, part)	\$3,029
Todd County (Rosebud, part)	4,005
Lyman County (Lower Brule, part)	4,679
South Dakota Total	10,661

► Poverty measured by percent of Indian families below poverty level from the 1990 Census, (Table 158):

Shannon County (Pine Ridge, part)	59.6%
Todd County (Rosebud, part)	54.4
Lyman County (Lower Brule, part)	45.0
South Dakota Total	11.6

► Unemployment of Indian population from the 1990 Census, (Table 154):

Shannon County (Pine Ridge, part)	32.7%
Todd County (Rosebud, part)	27.3
Lyman County (Lower Brule, part)	15.7
South Dakota Total	4.2

► Incidence of water borne diseases on the Indian Reservations is significantly greater than National averages, according to Indian Health Service, due in part to lack of adequate water in the home and poor water quality: impetigo, gastroenteritis, shigellosis, scabies and hepatitis-A.

3. Funding Crisis

The project will bring safe drinking water to a projected population of 51,600 in a rural setting embracing 14,000 square miles, all of which was formerly part of the Great Sioux Reservation established by the Treaty of 1868.¹ Initial authorization of the project was in October 1988 when Public Law 100-516 (102 Stat 2566) gave birth to the Mni Wiconi Project. The beneficiaries of the project were the Oglala Sioux Tribe of the Pine Ridge Indian Reservation and the Lyman-Jones and West River rural water systems. The latter are non-Indian systems that will receive water in the area between the Missouri River and Pine Ridge. Authorized funding for construction was \$87.5 million (January 1987 dollars).²

In October 1994 the project act was amended (108 Stat 4526) to add the Rosebud Sioux and Lower Brule Sioux rural water systems. The act also expanded the Oglala, West River and Lyman-Jones systems to meet full, rather than partial, needs within those areas. Authorized federal funding was increased to \$250 million (October 1992 dollars).³ In the original and amended legislation the construction period is from 1994 through 2003, and the first two years of appropriations and construction have passed.

Our crisis stems from the fact that, while in the first two years of appropriations the Administration did not support the full funding needs of the project, the difference between our needs and the Administration's budget could be reasonably addressed by Congress. The first two years of funding have been adequate, and we are presently on schedule to complete in year 2003. In FY 1996, however, the Administration's budget (\$10.5 million) fell exceedingly short of the amount needed (\$47.8 million). In November and December last, we addressed this shortfall with OMB and the Commissioner of Reclamation without successfully increasing the budget.

Without a substantial increase in funding, the project will fall sharply behind schedule. The hopes and expectations of people in the poorest area of the Nation will have been raised and then dashed. Faith in the commitment of the United States to the Indian people in this project has been slow in coming. Confidence in improved living conditions and confidence in employment opportunities will be eroded.

The Bureau of Reclamation, acting on behalf of the Administration, worked with us in its preparation and approved our *Final Engineering Report*, which was completed in May 1993. The following are the two funding schedules that are the backbone of the *Final Engineering Report*:

Fiscal Year ²	Original Schedule	Amended Schedule	Cost Share and Appropriations
1994	\$13,549,000	\$13,549,000	\$12,500,000
1995	13,426,000	13,426,000	16,000,000
1996	13,510,000	44,156,000 ⁵	:
1997	11,917,000	27,400,000	:
:	:	:	:
<u>2003</u>	<u>11,917,000</u>	<u>27,400,000</u>	:
Total	\$123,900,000	\$263,241,000	\$28,500,000

¹All of the lands in South Dakota west of the east bank of the Missouri River were part of the Great Sioux Reservation from the Treaty of 1868 until South Dakota was admitted to the Union in 1889. At that time the Pine Ridge, Rosebud and Lower Brule Sioux Reservations were formed, among other Sioux Reservations, as remnants of the former Great Sioux Reservation.

²In addition to the federal funds, Lyman-Jones and West River would provide \$12.5 million as a non-federal cost share. The State of South Dakota is the primary source of funding for the non-federal cost share.

³Total project costs are \$263 million, and the Lyman-Jones and West River share of the cost remains at about the same level (\$13 million) due to the fact that, while the Oglala Sioux core pipeline, treatment plant and intake costs were increased to add the Rosebud and Lower Brule systems, the sharing of costs by two new beneficiaries and a change from 65/35% to 80/20% federal/local cost share were factors affecting the lack of significant change in the non-federal costs. The two non-Indian systems were required by the amended legislation to participate in the annual operation and maintenance costs of the Oglala core system, which had not previously been required.

⁴All costs presented are from the *Final Engineering Report* and are based on October 1992 dollars. Our request for \$47,827,000 reflects cost indexing from FY 1992 to FY 1996 as authorized by the legislation.

⁵FY 1996 is the year of appropriations that would change (as planned by the Project participants and approved by the Bureau of Reclamation) depending on Congressional decision-making related to the amendments to expand the project and add Rosebud and Lower Brule. The *Amended Schedule* in the table now governs from FY 1996 through FY 2003, not the *Original Schedule*.

Our plan, developed with the cooperation and approval of the Bureau of Reclamation (an agency that has worked exceedingly well with us from the Commissioner to the Area level), was to defer all construction on the Oglala treatment plant at the Missouri River, the Oglala intake and the Oglala core pipeline until Congress had acted on our proposed amendments. Sizing of those facilities is subject to the water demands of the project and whether the project was expanded or not. Had we proceeded to build part of the Oglala core system to serve the originally authorized project beneficiaries, the cost of modification to address expansion would have been greater than if construction was deferred until we knew the sizes of facilities to design. In October 1994 Congress provided the decision-making by enacting amendments to the project. According to our plan we will now proceed to construction of the Oglala core facilities: intake, treatment plant and water supply pipelines.

The Administration had prepared the FY 1996 budget before the Congressional amendments, and the budget of \$10.5 million was supportive of our pre-amendment FY 1996 needs (\$13,510,000; see table above). In the appropriations process, we could reasonably expect added funds that would be consistent with the historic project support of the Subcommittees. Note in the table above that Congress appropriated sufficient funds in FY 1994 and FY 1995 to keep the project pulled even with the funding needs for the first two years of construction.

Immediately upon passage of the amendments and the President's signature, (October 31, 1994), there was considerable effort by the beneficiaries to affect an adjustment of the Administration's budget. We would be happy to share our correspondence and meeting notes with the Commissioner of Reclamation, the Director of OMB and the Secretary of Interior. However, the budget process was too far advanced, and we were unable to affect the amounts budgeted for our project.

4. Impacts of a Budget Shortfall

The impacts of the FY 1996 budget of the Administration on the project are devastating. In the remaining eight years of the project construction schedule, the average annual funding need is \$29.5 million (1992 dollars). In FY 1996 more than the average amount had been budgeted in the *Final Engineering Report* for the purpose of building the essential project features: Oglala treatment plant, Oglala intake and Oglala core pipelines needed by all beneficiaries to receive water from the primary water source, the Missouri River. The Administration's proposal will provide only 1/3 of the average annual amount needed for the project duration and less than 1/5 of the amount needed in FY 1996. The project will be crippled and prolonged indefinitely. The building of human hopes in an area of deepest poverty will be crushed. Action by this Subcommittee in FY 1996 is needed to restore the course of the project. With Subcommittee action the shortfall in the Administration budget will be surmountable. Without Subcommittee action, the project will not overcome the future annual crisis of Administration funding proposals that lag the needs and prolong project building to the point that the present value of the future benefits will be markedly reduced.

In addition to the delivery of water, there has been employment on Pine Ridge in the first two years of the project of over 65 individuals. West River and Lyman-Jones have created an additional 30 jobs. Annual employment on all of the Indian Reservations is expected to average 175 individuals and to continue at that level until 2003. At least 100 Indian jobs will be lost (along with confidence in the project) with the funding level proposed by the Administration. The Chairman and Subcommittee members are again referred to the economic statistics on the first page of our testimony to underscore the need for employment in the area. The loss of 100 jobs on the Indian Reservations, consistent with the Administration's budget, will destroy hopes for job opportunity.

Finally, elements of the project have been built (or are being built) during the first two years of construction in anticipation of the treatment plant and Oglala core pipeline from the Missouri River. Over 526 rural homes have been reached by the project (largely without water historically), and over 555 miles of pipeline have been constructed. Construction is underway that will bring the totals 1,208 homes served and 1,091 miles of pipeline. These accomplishments will be short-lived, however, because they rely in part on groundwater available in the area and in part on surface water to be delivered from the Missouri River. The water users will be stranded without a fully safe and adequate water supply, as contemplated by PL 100-516, until the Missouri River supply facilities are built and interconnected with the distribution facilities built in last two years.

At the outset of our testimony, we described the uniqueness of this project in meeting basic human needs in the midst of poverty. We close by entreating the Subcommittee to consider additional factors:

- ▶ FY 1996 is the third year of construction and at the conclusion of FY 1995 we are on schedule for completion in FY 2003;
- ▶ We are on schedule with design of FY 1996 facilities and can fully utilize all funds appropriated for FY 1996;
- ▶ With federal allocations for Central Valley, Central Utah and Central Arizona through FY 1995 exceeding \$5.9 billion; with FY 1995 appropriations for those projects alone exceeding \$200 million in Reclamation funds; and with FY 1995 appropriations to the Corps for its general construction budget in the \$1 billion range, we are confident that some small shifting of priorities to address our FY 1996 needs can be accomplished;
- ▶ Findings of Congress in Public Law 100-516, as amended, that places the Nation on the strongest of moral grounds in this project:

...the United States has a trust responsibility to ensure that adequate and safe water supplies are available to meet the economic, environmental, water supply and public health needs of the Pine Ridge, Rosebud and Lower Brule Indian Reservations...

As a final matter, we seek \$500,000 in additional funds for a feasibility study of the wastewater needs of the three Indian Reservations in the project. There is a need to provide wastewater facilities that are presently lacking on the reservations to ensure the full benefit of the drinking water systems now being constructed.

PREPARED STATEMENT OF DONALD C. HUFFMAN, VICE PRESIDENT, MISSOURI-ARKANSAS RIVER BASIN ASSOCIATION

My name is Donald C. Huffman. I am Executive Vice President of Phoenix Towing Company - a Missouri River navigator. I am also Vice President of MoArk - the Missouri-Arkansas River Basin Association.

I am pleased to have the opportunity to express my views regarding the Missouri River Master Manual Review and, more specifically, to comment on the Preferred Alternative as published by the Missouri River Division U.S. Army Corps of Engineers.

It is the position of MoArk that the Corps of Engineers should discard the so called "Preferred Alternative" and return to the Master Manual for the operation of the Missouri River.

The Master Manual effectively allocates the benefits of the development of the Missouri River among the various interests; i.e., flood control, irrigation, water supply, navigation, hydro-power and recreation.

There are those in the environmental community, such as the Environmental Defense Fund, who would phase out Missouri River navigation. Because of its fuel efficiency, barge transportation is the most environmentally friendly mode of transportation. Yet, we continue to see environmental groups who oppose all barge transportation whether it is on the Missouri River or the Mississippi River.

The so-called "Preferred Alternative" has drawn widespread criticism from as far south as Louisiana for: (1) failing to adequately address economic losses due to reduced barge traffic (2) inadequate environmental assessment (3) failure to study the effects on spring flooding and interior drainage (4) perfunctory study of the effect on the Mississippi River (5) incomplete consideration of the effect of future depletions in its analysis of the effects on downstream interests.

My comments will concentrate on Missouri and Mississippi River navigation.

- I. The Preferred Alternative will cause Missouri River navigation to become expensive and unreliable. It will destroy Missouri River navigation.

The Corps concluded that the Preferred Alternative would only reduce Missouri navigation by 15%. This is false! Page 75 of Table XIV of their 1994-1995 Annual Operating Plan clearly shows a reduction in tonnages carried during the years 1990-1993 of up to 50%.

The Preferred Alternative provides:

A. Season Length 6.1-34

- 1.) A normal season would run from 4/1 to 11/1 - 7 months.
- 2.) 40 of 96 seasons would be less than 7 months.

This scenario severely damages navigation. Barges would be unavailable for harvest - the most critical part of the barge season. Without harvest, there is no reason for the season.

- B. Minimum flows for August, September and October. Barges would have to operate at 7 1/2' draft during the best months of the season, i.e. wheat harvest and fall harvest.

Effect of reduced drafts:

A barge loaded to 8'6" carries 1400 tons
 A barge loaded to 7'6" carries 1200 tons

A barge reduction of: 200 tons

or 15%

Effect of reduced tow size: During low water operations (when operating at 7'6" draft) tow sizes out of Kansas City have had to be reduced from nine barges to six barges. Overall, a 33% reduction in Missouri River towing efficiency.

The Preferred Alternative is even more onerous than the plan used by the Corps of Engineers during the drought years. In fact, the Tennessee Valley Authority findings are consistent with our estimates for the lost earning power for barges on the Missouri River under the Preferred Alternative.

Historically, hydrological data (1967-1993) suggests a partial October closing of navigation would occur 83% of the time. Thus, barges would be unavailable for fall harvest.

The result: No navigation during the peak season of fall harvest. Missouri River navigation will die off.

Without navigation, the Corps of Engineers must reassess the impact of the Preferred Alternative. The University of Missouri's Food and Agricultural Policy Research Institute (FAPRI) concluded that the loss of barge traffic on the Missouri River would reduce Missouri farm cash receipts by \$14.5 million and increase farm operating expense by \$2.3 million. The total statewide impact to the farm industry was estimated at \$43.3 million with a loss of 692 full time agricultural jobs.

- II. The Preferred Alternative seriously damages Mississippi River navigation below St. Louis and severely weakens the nation's premier inland waterway.

Any discussion of Mississippi River navigation must begin with comments regarding its importance.

One of the single most positive benefits this country has in its efforts to balance our trade deficit is grain exports. Over 70% of these exports move via the Mississippi River system.

Thanks in large measure to the fabled Mississippi River, Louisiana is the major gateway for U.S. grain and soybean exports. The port of South Louisiana handles some 200 million tons of cargo each year, making it the largest tonnage port in the United States. Each year 100,000 barges come

into the South Louisiana port and the credit must go to the Mississippi River.

Let us now look at the importance of Missouri River water to the Mississippi. Fifty percent of the water in the Mississippi River at St. Louis flows from the Missouri River. During the summertime drought of 1988 Corps records demonstrate that 65% of the water in the Mississippi River at St. Louis came from the Missouri River.

Clearly, any changes in Missouri River flows will dramatically affect Mississippi River flows.

On page 6-79 of the D.E.I.S., the Corps of Engineers states, ". . . some notable adverse impacts occur to Mississippi River navigation . . . Further analysis is required to determine the merits of a drought contingency plan, which is beyond the scope of the D.E.I.S."

The Mississippi River will be changed by the Preferred Alternative and its reliability below St. Louis will be lessened.

In considering river stages at St. Louis the Corps of Engineers used monthly averages. They failed to identify actual low stages. This basic flaw destroys what little attention they gave to the St. Louis harbor. In fact, a review by the American Waterway Operators of data provided by the Corps shows that Preferred Alternative flows will severely restrict Mississippi River operations in one year out of every three and force complete closures one year in every five.

Additionally, the Corps of Engineers carelessly ignored the effects of increased transit times and the cost increased dredging.

Nowhere in the Draft E.I.S. is there any mention of the effect of the Preferred Alternative on Illinois, Iowa, Wisconsin & Minnesota agricultural economics.

The Preferred Alternative should be withdrawn. The Corps of Engineers should be directed to follow the Master Manual.

In the interim, the Corps should evaluate and fully disclose the impact of transportation delays and cost increases on regional producers, shippers, carriers and exporters, including the magnitude of shifts and losses in regional employment.

PREPARED STATEMENT OF J.M. PETERSON, PRESIDENT, MISSOURI RIVER
BANK STABILIZATION ASSOCIATION

The membership of the Missouri River Bank Stabilization Association, together with the officers thereof, extends thanks to you for your courtesy in giving us the opportunity to present this testimony with reference to the Fiscal Year 1996 budget.

The project relative to this testimony is the Missouri National Recreation River project, authorized in 1978 under Section 707 of Public Law 95-625. This project covers the fifty-nine mile reach of the Missouri River extending from Gavins Point Dam, Yankton, South Dakota to the Ponca, Nebraska, State Park. This is the sole remaining reach of Missouri below its main-stem dams which yet exists in a relatively natural, or wild, state, lying between the states of Nebraska and South Dakota. The valley occupied by this still meandering reach of the Missouri differs markedly from the valley lying upstream from Yankton. Geologically it is the "old" valley as it did not undergo the latest period of glaciation and is thus vastly wider than the "new" valley. The valley's broad floodplain is highly erodible. Construction of the main-stem dams has eliminated flooding by the river in this reach, but erosion continues unabated. This erosion is no longer offset by the flooding which formerly occurred. Thus, the river continues to widen; the U.S. Army Corps of Engineers reports the river to be sixty percent or more wider than before the closure of Gavins Point Dam.

The Congressional enactment of the Missouri National Recreation River legislation in 1978 authorized the expenditure of \$21,000,000.00 to achieve the legislative purpose. At this time, some \$2,000,000.00 of that amount has been expended on this project. **For FY 96 \$200,000.00 is needed for the operation and maintenance of structures built prior to 1978** under the Section 32 Streambank Erosion Control and Demonstration Act. In addition, funds for new construction and other needs are required to work toward completion of this project.

Continuation of funding will provide the National Park Service and the Corps of Engineers the means to proceed with efforts needed to complete this project particularly *if it be so directed by the Congress*. In addition to preserving, protecting and enhancing the investment of \$2,000,000.00 previously invested in this project, continuation of funding will enable the agencies involved to provide limited additional access to the river, to obtain scenic easements and easements for a shoreline game production area, to preserve, develop and protect habitat for threatened and endangered species (particularly the interior least tern and piping plover), to provide streambank protection as needed and for such other works as may be suitable to achieve the Congressional purpose.

As we approach the bicentennial of the Lewis and Clark Expedition, it is appropriate to note that this segment of the "old" Missouri is the only such segment Lewis and Clark would recognize today. The meandering river displays the majesty and grandeur of the river of old. Sandbars, islands, chutes, dunes, forested shores, oak-clad bluffs and quiet tributaries all characterize this, the "wild, Missouri". This is the historic treasure the Congress sought to preserve in the 1978 legislation. It is well worth the preservation prescribed.

In conclusion, we thank you again for the concern and consideration shown the farmers, outdoorsmen, environmentalists and others constituting the membership of our Association.

LETTER FROM SENATOR PAT ENGEL, NEBRASKA STATE LEGISLATURE

Honorable Pete V. Domenici, Chairman
 Subcommittee on Energy and Water Development
 Senate Committee on Appropriations
 Washington, D.C. 20510

March 14, 1995

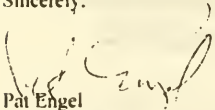
Dear Mr. Chairman:

I am pleased to enter this letter in support of the efforts of the Missouri River Bank Stabilization Association in the recreational development of a stretch of the Missouri River which runs from Yankton, South Dakota to Ponca, Nebraska.

The river is an abundant habitat for fish and fowl and is a state and national treasure that encourages people to enjoy the beauty of this region of the country. In contrast, most of the lower river has become a swift moving and uninspiring canal with damage to the ecology, causing irreversible damage.

Past efforts of the Association to preserve our river is to be commended. I would appreciate the subcommittee once again providing the necessary investment needed to preserve this worthy project.

Sincerely,



Pat Engel
 State Senator
 District 17

LETTER FROM SENATOR STAN SCHELLPEPER, NEBRASKA STATE LEGISLATURE

The Honorable Pete V. Domenici, Chairman
 Subcommittee on Energy and Water Development
 Senate Committee on Appropriations
 Washington D.C. 20510

March 14, 1995

Dear Mr. Chairman:

It is with great pleasure that I offer my name in support of the efforts of the Missouri River Bank Stabilization Association. I have been representing this area of the great State of Nebraska since


1992, yet for many more years I have enjoyed and admired this beautiful segment of the Missouri River for which this request is being made.

The portion of the river in question, the 'wild' Missouri, is a wide, braided river providing bounteous habitat for fish and fowl. The 'wild' Missouri is a fertile, aesthetic gem providing recreational value as well being recognized as a state and national treasure. In contrast, an extensive network of dams and other channelizing structures, while important in their own respect, have rendered most of the lower river, a swift moving and uninspiring canal. Realizing the damage to the ecology and fertility of the river such measures have caused, efforts have begun to reverse the damage on the lower river by recreating the features that abound on the 'wild' Missouri.

Past efforts of the Association to preserve our river and the wisdom of this subcommittee to fund preservation efforts is to be commended. I would strongly encourage the subcommittee to authorize funding for the continued maintenance of structures previously built. We must insure that our past investment in preserving the river are protected.

Thank you for your consideration.

Sincerely,



Senator Stan Scheppeler
18th Legislative District

PREPARED STATEMENT OF JOHN ROBB, CHAIRMAN, UPPER MISSISSIPPI FLOOD CONTROL ASSOCIATION

Mr. Chairman and members of the committee my name is John Robb. I am chairman of the Upper Mississippi Flood Control Association, an association of Levee & Drainage Districts, Municipalities, Industry, & Agriculture in the Upper Mississippi Valley. We are very grateful to be allowed time to present our views regarding appropriations for water development projects.

Across our Nation and around the world natural disasters continue to occur, with devastating results to regional areas and various amounts of impact nationally. In the case of nations, in 1994, The Netherlands barely escaped a tremendous national disaster, because of inadequate protection from flooding. The 1993 floods in the Midwest were devastating regionally, but had only a small affect on the national economy. The 1995 flooding in California will have very little affect on the national economy, but will impact the vegetable market nationally.

Disasters come in two forms, natural and man made. Man cannot control nature except by appeal to our Creator. However, man has certainly been given authority to protect ourselves from nature. We have the technology to control flooding. I wish to make a few points about our failure to act and man made disasters.

The Salinas Valley in California is the most excellent area in the world to produce vegetables. The cost of one flood is more than the cost of protection and some of the land is permanently damaged. In the Netherlands, a quote by a mad Dutchman, and printed in the Columbia, Missouri, Tribune, February 2, 1995 is sufficient, " These dikes have been here since the 13th century...and they just haven't been kept up... because of all the "blank" by the environmental freaks, nothing is happening...You need to have an eye for the landscape, but its more important to look out for the people...This is going to cost billions." Fortunately, for the Dutch, the levees held and you can bet your last green donation, when the next flood comes the Netherlands and northern Germany will be prepared.

Unfortunately, along the navigable portions of the Upper Mississippi, Missouri, and Illinois Rivers we did not prepare, we had a man made disaster and we are waiting for another, because we have done absolutely nothing to control the next one. The solution, designed by environmentalist, the Fish & Wildlife Service, and their "media cheerleaders", was to repair levees to pre-flood conditions, jack up, buy out, and move out. A financial and tax payer disaster of money poured down the proverbial rat hole. The cost of this lurch toward "Floodplain Management" would have paid for a system that would have prevented this 5 century flood. A pitiful man made disaster.

The two "crown jewels" of the floodplain management crowds, solution for the 1993 flood, are the buy out of Valmeyer, Illinois on the Middle Mississippi River and the purchase of Louisa # 8 Drainage District, on the Iowa River. A \$8.6 million dollar flank levee project in the Harrisonville Levee & Drainage District would have prevented the flooding of Valmeyer. Restoration cost, disaster payments, and Valmeyer buy out in the Harrisonville L & DD will exceed \$54 million, cost information source, Monroe County Treasurer.

The Louisa # 8 Drainage District has a new name "Horseshoe Bend", new owners (FWS), and the same farmers, but under new management. Attached to my testimony is a letter from the FWS to the previous owners, offering contracts to farm their previous farms to "control willow and cottonwood infestation," while the new managers, "over a period of time...gather the resources to properly manage the area." It took farmers about 80 years to perfect the system that bounces wildlife off our cars like bugs off the windshield and pays the government for the privilege. It is any bodies guess how long it will take the FWS to discover a new system, but the cost will be top secrete and a congressional investigation couldn't discover the actual tax payer cost, truly a man made disaster.

However, the greatest disaster to the Midwest is environmental over kill which is preventing economic development along the most strategically located river system in the world, while the rest of the world is preparing their waterways for development and international trade. Dr. Anatoly Hochstein, Director of National Ports and Waterways Institute recently said, "Observing the attitudes, investments, and plans for the future, it appears that at this time, the development of inland waterways and their perceived role in U.S. National Transportation System and in the rest of the world look like opposites."

Europe has just completed the multi-billion dollar Rhine-Danube project to transport barges from the North Sea to the Black Sea and announced \$26 billion dollars in new projects. China has two major waterway projects underway. Modernization of the southern branch of the Grand Canal and the \$12 billion dollar Three Gorges Dam Project for flood control, hydro, and navigation. The Tiete-Parana Development Agency, in cooperation with the U.S. Department of Commerce has just announced a \$655 million dollar waterway project, in South America. The project on the Tiete-Parana River System, along with a natural gas pipe line, is projected to initiate \$20 billion dollars of economic development in the next 5 years, reduce transportation cost of soybeans by 5 fold, and move 5 million tons of additional soybeans to the international market. There will be another disaster when we allow "floodplain management" to cost this Nation our leading positive balance of trade markets.

How can the rest of the world spend billions on waterway projects while the United States cannot justify the cost to maintain and improve our infrastructure? The world recognizes

that infrastructure brings development and economic expansion and is good, but in this country development is bad if it interferes with an 1850's landscape. How can we compete in the 21st century with 1930's infrastructure. Another disaster waiting to happen.

The Endangered Species Act and other environmental mandates are being used to dismantle or prevent maintenance and improvements to our waterway system. A proposal by the Corps would shut down the Missouri River navigation System, in an effort by the Corps to meet requirements of the Endangered Species Act. The proposal would increase water flow in the spring and reduce flow in the fall, in an experiment to improve sturgeon spawning and least tern and piping plover nesting.

The natural spawning if successful, will not improve the present hatch and release program and the nesting area of 432 acres on the entire Missouri River would be improved by 17 to 117 acres and produce 21 birds each, per year. Mississippi River Navigation would be frequently affected similar to the drought year of 1988. This proposal would reduce property values in Missouri, Kansas, Nebraska, and western Iowa, and affect the Midwest economy by 100's of millions of dollars, another disaster. CUT THE FUNDING!

The Environmental Management Program on the Upper Mississippi and Illinois Rivers will spend \$200 million of hard earned tax dollars by 2003 and cause losses of 100's of millions in commerce. The EMP program spends tax dollars moving sand and sediment to build islands inside the floodway and rip rap islands, which the river moves and the FWS moves back, and build levee & drainage districts which the FWS say are to hold the river in, not out. The latest innovation in job security is planting of hardwoods in the floodway which will need to be planted again after the next flood.

These hard earned tax dollars need to be used to build infrastructure and encourage economic expansion to pay off our mountain of debt created by these types of boon doggles. A quick way to cut \$200 million from the budget is to discontinue appropriations for the entire Environmental Management Program. Everyone is so anxious to move food stamps out of the Agriculture budget, lets move FWS and EPA funding out of the infrastructure budget. Let these freeloaders that are a continual heart ache and handicap to commerce, fund their own budgets and justify the value of their experiments. CUT THE FUNDING

The environmental industry and the Fish & Wildlife Service are trying to add 6 years and \$24 million to the Corps Study of the Upper Mississippi & Illinois Rivers Navigation Systems. The present study is for 6 years and will spend \$13 million to determine environmental impacts from navigation. A large amount of these tax dollars are being spent to measure affects from waves and sediment from tow props. The river is not in a vacuum, there is wind almost every day. They haven't made a tow boat that can match the wind for waves. Annual floods and major floods literally plow the river bottom and move billions of tons of sand and sediment.

The Corps and the FWS have spent millions of dollars on numerous studies since 1979 and cannot come to a conclusion. Enough already! While the FWS and environmental radicals delay improvement and maintenance of our system, South America is steadily building infrastructure, with our bank financing, to capture world markets. Stop these boon doggles. CUT THE FUNDING!!!

Principles and Guide Lines, Benefit Cost Analysis Formula, being used to evaluate waterway projects, does not properly value benefits and do not allow benefits for flood control which are allowed for other projects. Flood control projects receive no benefits for future economic development, transportation, recreation, environment and habitat protection, and agricultural land is valued for cash value of one crop. Navigation is allowed benefits for future usage, based upon a projection curve. The \$5 billion Denver Airport was approved for federal funding partly based upon future usage and regional economic expansion, because of the new airport.

Recreation and habitat enhancements are given inflated values in FWS project analysis. Drainage Districts have the best habitat and receive no credit for benefits. The U.S. Department of Commerce is spending U.S. tax dollars to help plan and promote the Tiete-Parana Development Agency's \$655 million waterway project in South America, because of \$20 billion of future economic development, made possible by the waterway project. If cost benefit calculations are used, we should use the best available technology. The flood frequency must be corrected. The current standard distribution function (log-Pearson Type III) for annual peak discharges are incorrect and greatly distort the Cost-Benefit calculations. Also we should use the most current flow data since the 1930's.

The Administration's Fiscal Year Budget recommendations, to reverse the federal and sponsor contributions to 25% federal and 75% local for flood control projects, would virtually eliminate flood control in America. The rule which requires 50% stream flow from out of state to involve federal participation is not workable, example the Illinois River, the Missouri River in Montana, and the Tennessee River in eastern Tennessee. The Administration is attempting to change the 1936 Flood Control Act without legislation.

If flood control is eliminated and the levee systems are not maintained, economic development is forbidden, new structures cannot be built, existing structures cannot be improved, insurance is un-affordable, agriculture is made unequal, and then what happens after the next flood? Floodplain Management???

If the President's plan is implemented the Fish & Wildlife Service will eventually be farming or managing the farming on 2 million acres along the Midwest's navigable rivers, some of the most productive land in the world, and South America and Europe will be laughing all the way to the BANK.

Thank you very much.

PREPARED STATEMENT OF ROBERT STRAND, CHAIRMAN, GARRISON
DIVERSION CONSERVANCY DISTRICT

My name is Robert Strand, Chairman of the Garrison Diversion Conservancy District Board of Directors. We wish to thank the Chairman and the Committee for their past support. Over the many long years of turmoil on the Garrison Diversion Project, you have continued to provide a level of funding which has allowed us to continue our efforts, to work out the problems associated with the project. We are truly grateful for your loyalty and support during

these difficult years. They have been difficult years for us. The citizens of North Dakota have increasingly asked, "Will the government ever live up to its promises and provide North Dakota a working water project?"

Past funding has been used to maintain the nearly \$400 million of unfinished project facilities that cut across the state's midsection. The 75-mile McClusky Canal runs from Lake Audubon to the site of the planned Lonetree Reservoir where it is dead ended. The New Rockford Canal runs another 44 miles, starting 22 miles to the east of the terminus of the McClusky Canal and runs to its dead end near the town of New Rockford, adjacent to the upper James River channel. The District performs the operation and maintenance functions for these facilities under contract with the Bureau of Reclamation. Prior to District assumption of this role, the facilities were deteriorating rapidly, along with the public's view of the federal government's stewardship.

In addition, the Oakes Test Area, along a lower portion of the James River, is another incomplete facility. This facility was designed to provide research results on a 5,000-acre unit and then be integrated into a 24,000-acre area to be developed under the 1986 Reformulation Act. While research has been conducted in the area, the original purposes of the research have not been met. Attached to my testimony is a comparison of the original research objectives with the actual results to date. The Bureau now wants to discontinue its support for the work and, on the one hand, proposes to wrap up the research work in fiscal year 1996, but has not requested any funding to actually carry out that promise. We are, thus, requesting an additional \$800,000 to allow the Bureau to address this need. Mr. Chairman, this modest increase in funding is short of the \$1.0 million of additional monies needed to continue the research and fulfill the original promise.

The District understands the Bureau's desire to get out of this traditional business and is willing to work with them to that end. For example, we have proposed a transition period to allow the research work in the Oakes Test Area to be transitioned into a more relevant and useful direction. The new direction would be one that would hopefully attract new investors both public and private. This proposal would allow the Bureau to reduce their role and funding and, at the same time, preserve and enhance the benefits of the \$56 million that they have invested in the test facility. The additional funding in fiscal year 1996 will allow us to pursue this alternate policy. We strongly believe it is a better, more responsible policy road to take.

Past funding has also been used to help meet part of a \$200 million MR&I grant program authorized in the 1986 Reformulation Act. To date, nearly \$110 million has been appropriated to help with the most severe of the water supply problems in rural towns and communities. The need is much, much greater, but that was the deal we were given in 1986. One further example is the unmet need for the Native Americans to have a safe, reliable water supply. The communities and rural water system users that are finally receiving reliable quality water are indeed grateful.

The Bureau's request for funds in fiscal year 1986 contains approximately \$11 million for the continuation of that program. We have been programming the development of the water systems based on the appropriation of about \$15 million annually. Many of the communities have looked ahead and anticipated when, with this level of funding, they might expect the funding needed for them to proceed with the development of their water systems. The reduced funding will add to the hardship they already experience. We are, therefore, asking that an additional \$4 million be added to the amount requested. The total MR&I funding would, thus, be \$15 million; far short of the \$20 million capability.

Mr. Chairman, I would be derelict in my duties if I did not take this opportunity to appraise you of the process we have underway, and we are hopeful that this process will, once and for all, resolve the Garrison Diversion problems and meet the water infrastructure needs of the state. For almost a year and a half, we have been working with the tribal leaders in the state, the Bureau of Reclamation and the national conservation representatives, the Governor and the Congressional Delegation to develop a consensus on the future water needs for the state and the best way to meet those needs. We are hopeful that the process will produce a consensus that can be put into a legislative proposal during the 104th Congress. Mr. Chairman, nothing would please us more than to settle this issue and achieve a semblance of normalcy in the water management programs of the state. We are excited about the prospect of a future in the state that is not limited by the lack of access to North Dakota's rights to the waters of the Missouri River. We will keep you and your committee informed as this process proceeds.

We again would like to thank the Chairman and the Committee for your support and patience with our struggle.

PREPARED STATEMENT OF DAVID A. SPRYN CZYNATYK, STATE ENGINEER,
NORTH DAKOTA STATE WATER COMMISSION

My name is David Sprynczynatyk, State Engineer and Secretary to the North Dakota State Water Commission. I am here today representing North Dakota Governor Schafer. With the Chairman's permission, I would also like to submit, for the record, the prepared testimony of Robert Strand, Chairman of the Garrison Diversion Conservancy District.

Mr. Chairman, last year's appropriation for the Garrison Diversion Unit was \$32 million. A majority of that money was used to help rural communities of North Dakota obtain a reliable quality water supply. Last year, 15 communities received funding assistance to meet their water supply needs. Seven of those

communities were under the U. S. Environmental Protection Agency's orders to comply with primary standards of the Safe Drinking Water Act. We are grateful to the Congress for the assistance, and on behalf of the 15 communities, we say thank you.

This year the President has requested \$24.9 million for the Garrison Diversion Unit in order to continue assistance to the rural communities still in dire need of a reliable water supply. The money would also be used to continue a portion of the Bureau of Reclamation's obligation under the 1986 Garrison Reformulation Act. We understand the desire to reduce spending and ease the pressures of a heavy debt and also how difficult it is to find places to cut the budget. The 22 percent reduction in Garrison Diversion funding is significant, considering the needs that will go unmet without additional appropriations.

In order for the Bureau to carry out its remaining obligation to maintain and complete the research work in the Oakes area, an additional \$800,000 is needed. Without this critical funding, we fear the investment in research equipment and valuable studies will deteriorate, and the results of a multi-year program of study will be negated. It is a small, but important, amount of funds needed to assure that the facilities and hard work that has gone into the critical area of study will not be lost.

Mr. Chairman, while the Bureau's capability to perform additional work under the 1986 Reformulation Act is much greater, we are only asking that an additional \$4.0 million be appropriated for the authorized assistance to municipal and rural water systems in North Dakota. The recipients of this assistance are real people with problems that you and I have largely assumed no longer exist. The State Water Commission and the Garrison Diversion Conservancy District each are petitioned regularly for additional help to relieve communities from the burden of hauling water for domestic and livestock use.

One lady recently testified before us that because of the limited supply of hauled water available in the cistern, she was frequently faced with denying her children a daily bath in order to have enough water to meet the family's cooking needs. Others tell of limits on the number of livestock that can be kept because of the limited water supply. Many of us may remember the trudging of hauling water and the harsh limit it puts on the activities that can be undertaken as a farmer or simply as a resident of such a community, but to many of North Dakota's residents, it is not a distant memory, but a reality that they face every day.

The 1986 Reformulation Act left North Dakota with incomplete project canals that go nowhere and others that have no water supply. The major needs of the Devils Lake Basin, James River Valley and Red River Valley are unmet. To resolve these issues, we have joined with the tribal leaders and the national conservation groups in a collaborate effort to find acceptable solutions. Mr. Chairman, these funds will also be used to support the studies needed to find the solutions to our long beleaguered water program. We are hopeful that the solution can be found in time for the 104th Congress to take action.

Mr. Chairman, the total additional appropriation requested is \$4.8 million. This will represent a 7.0 percent cut in our funding and will be far short of the Bureau's capability and our total need. We sincerely hope that the committee can find the additional funds we are requesting and wish to thank you in advance for your consideration.

PREPARED STATEMENT OF UPPER MISSISSIPPI RIVER BASIN ASSOCIATION

PROJECT: Upper Mississippi River System Environmental Management Program, IL, IA, MO, MN, WI

AUTHORIZATION: \$19.455 million

BUDGET REQUEST: \$19.455 million

Background ...

The Upper Mississippi River System Environmental Management Program (EMP) was authorized in 1986 in response to the need for both restoring lost and degraded habitat and improving scientific understanding of the river system. What was at first a novel new approach to interagency environmental management, has now become a widely recognized and respected regional program.

The EMP consists of two primary components: the construction of individual projects to rehabilitate or enhance threatened habitat areas and a long term monitoring program to track the environmental health of the system. Each of the habitat projects (varying in size and ranging in cost from about \$200,000 to \$6 million) employs different types of techniques, including such things as selective dredging to remove sediment, island creation, water level control features, and side channel closures or openings. The long term monitoring program consists of six field stations throughout the river system which routinely collect standardized data on water, sediment, fish, and vegetation at over 150 sites. In addition, the monitoring program headquarters at the Environmental Management Technical Center is home to a multi-disciplinary team of scientists who are interpreting and displaying the data in ways that will be useful for management decisions.

The unique character of the EMP is, in part, a function of its partnership design. While the Corps of Engineers is the lead agency, the U.S. Fish and Wildlife Service, National Biological Service, and five basin states all have specific roles to play in planning, designing, evaluating, and operating and maintaining the habitat projects, as well as conducting the data collection and analysis that is part of the long term monitoring program. In addition, the Upper Mississippi River Basin Association, established by the Governors of the states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin, serves as the primary regional forum for the coordination of EMP related issues and policies. The Association has testified in support of appropriations for the EMP every year since its inception in 1986. It is with tremendous pleasure that we once again present testimony on this unique program.

National Significance ...

It is clear that one of the key questions in this year's budget and appropriations deliberations is whether the programs and projects funded by the federal government are appropriately a federal responsibility. In other words, are we investing in programs that are truly of national significance? While we have been emphasizing this very point with regard to the EMP since it was first authorized in 1986, it is a particularly relevant issue now.

The states of the Upper Mississippi River Basin were pleased to see that "environmental restoration" is one of the three mission areas that the Corps of Engineers has highlighted in its FY 96 budget as being of national significance and thus appropriate for federal involvement. The EMP program on the Upper Mississippi River System is certainly such a venture. Indeed, in Section 1103 of the 1986 Water Resources Development Act authorizing the EMP, Congress declared the Upper Mississippi River System to be "a nationally significant ecosystem and a nationally significant commercial navigation system."

There are a variety of characteristics of this river system which suggest that it is an appropriate arena of federal concern. As the shared border uniting the states, the Mississippi River is a vast interstate river where the Corps of Engineers and other federal agencies will doubtlessly have an on-going role to play, even as we enter an era of federal downsizing, privatization, and transition to state and local control. As an example, the integrated data sets and systemwide modeling and analyses being accomplished under the auspices of the EMP long term

monitoring program are clearly beyond the ability of a single state and are most appropriately the responsibility of the federal government. Secondly, the environmental degradation which the EMP is designed to address is related, at least in part, to the way in which the system has been managed for the past 50 years by the federal government for commercial navigation purposes. And, finally, the national significance of the river's habitats and resident species is exemplified by the fact that there are five national wildlife refuges along the river, comprising nearly 300,000 acres. Indeed, a number of the habitat restoration projects undertaken as part of the EMP program are located on lands managed as national refuges.

Economies and Efficiencies ...

In addition to being an appropriate investment for the federal government, we believe the EMP is a wise investment. The pay-offs are already obvious. Because the EMP, through its long term resource monitoring program, has been able to compile an array of integrated data sets and build an unrivaled capacity for systemwide spatial data analysis on the Upper Mississippi River, it is benefiting a variety of other federal endeavors beyond what its creators might have originally imagined. The examples of this synergy are many.

The Corps of Engineers' Upper Mississippi-Illinois Waterway Navigation Study is relying heavily upon the EMP's Environmental Management Technical Center in conducting parts of the navigation impact analyses and environmental studies that are part of the Corps study. The Corps noted in its 1992 EMP midterm evaluation report that their "goal will be to leverage navigation study funds against the EMP investments already made, as well as those in the future. Over \$5 million has been or is scheduled to be expended for products complementing the Upper Mississippi-Illinois Waterway Navigation Study."

Another example of the economies that can be gained by having a centralized source of ecological data and a geographic information system (GIS) is the collaboration that has developed between the Environmental Management Technical Center (EMTC) and the U.S. Environmental Protection Agency. The EMTC's technology is being utilized by EPA to help fulfill its responsibilities under the Oil Pollution Act of 1990. The GIS mapping capabilities developed by EMTC have become a major asset in devising contingency plans for responding to oil spills on the river.

Yet another example became evident following the 1993 floods in the Upper Mississippi and Lower Missouri River Basins. The EMTC's land cover data sets and experience in remote sensing and geographic information systems (GIS) were instrumental in the efforts of the Administration's Scientific Assessment and Strategy Team to provide timely and relevant scientific input into the evaluation of post-flood policy options. A year and a half before the 1993 flood, scientists at the EMTC were putting together historical data and developing flood discharge/elevation relationships for the Upper Mississippi River. As a result of this work, the EMTC has been able to offer valuable new tools, in the form of an interactive on-line data set, to those who are interested in evaluating the linkages between the volume of water during a flood and the height of the flood waters.

Tangible Results ...

In the past, we have reported the accomplishments of the EMP in terms of numbers of projects constructed and designed. Despite funding shortfalls of over \$20 million in the early years of the habitat projects program, the construction of 17 habitat projects has been completed and another 10 projects are under construction. In addition, 5 projects have been designed and are awaiting construction approval or contract award. Eighteen more projects have design work underway.

While these figures are impressive and illustrate how different the multi-faceted EMP is from other more traditional Corps programs, they certainly do not tell the whole story. The true measure of success can be found in the ecological response we are beginning to see to these projects. The Brown's Lake project near Bellevue, Iowa is an excellent example. As a result of the deflection levee that was constructed to prevent sediment-laden flows from entering this 450 acre backwater complex, turbidity levels have been reduced. In addition, the movement of radio-tagged large mouth bass indicates that this species will use the area for over-wintering when the water control structure is operated to provide inflow of oxygenated water. Recent creel surveys have shown a 117 percent increase in anglers' catches.

Similar fisheries success is evident at the Bertom-McCartney Lakes project in Wisconsin. The placement of rock material and protective fish structures in selected sloughs and side channels has made a day and night difference in species richness and diversity. Small mouth

bass, only rarely found in this pool and never before in the project area, now find the habitat to their liking.

The Lake Onalaska Project near La Crosse, Wisconsin provides yet another example of the dramatic successes that EMP habitat projects have achieved. The three islands constructed in Pool 7 of the river have reduced wave action and sediment resuspension, thus helping to reestablish lost aquatic plant beds which provide food for migrating canvasback ducks. An added, but not originally anticipated, benefit of these islands is their value as nesting grounds for waterfowl. Since 1991 the hatching success on these islands has skyrocketed, with over a 20-fold increase in hatchlings.

The Flood of 1993 ...

It is still difficult to talk about the Mississippi River without discussing the Great Flood of 1993. While that year's records floods were a disaster of enormous proportions, they also provided a unique opportunity to test both the performance of EMP habitat projects and the value of the monitoring system and data collection efforts which had been instituted prior to the floods.

Generally speaking, EMP habitat projects survived the flood event remarkably well, functioning as they were designed with only minor damages. However, the high water conditions did result in delays in the progress of both construction and planning activities. In some cases, the Corps Districts had to abandon work on EMP projects because higher priority flood-related activities took precedence. In other cases, EMP construction sites were simply inaccessible or impossible to work on as a result of the high waters.

The EMP's long term resource monitoring program also felt the effects of the 1993 flood, but in surprisingly positive ways. The six field stations, which were established at the inception of the program to collect standardized data on water, sediment, fish, and vegetation, were able to maintain their operations throughout the duration of the flood. However, as a result of prolonged periods of high water in the lower reaches of the river, some of the field stations had to temporarily divert their efforts from routine monitoring. Those field stations redirected their efforts to special studies of species composition and use of the flood inundated areas, taking advantage of the rare opportunity afforded by the flood conditions. Migratory species such as the skipjack herring were found in locations where they had not previously been known to exist, most likely as a result of the fact that many dams on the river were fully open for extended periods of time during the flood. The ability to capture much of this extraordinary data, documenting the flood's effects on fish species, aquatic vegetation, and water quality, was possible because we had the necessary infrastructure and staff in place. The EMP's field stations proved to be a tremendous scientific asset during the flood.

Lessons Learned and Progress Made ...

When first authorized in 1986, the EMP was an innovative program, differing in many ways from typical Corps of Engineers water development projects. Since that time we have learned a great deal about both environmental restoration techniques and managing a large-scale regional program such as this.

The EMP is advancing the state of the art in incremental analysis of habitat projects. By modeling the habitat gains and losses of representative target species under different design alternatives, the most cost-effective project design can be identified. We are also learning a great deal about previously untested or rarely utilized techniques for restoring and enhancing habitat areas. Island creation is one such example. We have learned that islands shaped like a fish hook, similar to the way the natural processes of the river might form islands, are producing substantial habitat benefits. The large "shadow zone" downstream of the island allows for deposition of fine particulate matter and provides a quiet water area for aquatic vegetation.

We have also made substantial progress on resolving procedural and policy issues that challenged us in the early years, as we launched a program that had no precedent. In 1992, a strategy was devised for dealing with the difficult question of which agency should operate and maintain the projects after construction, an issue complicated by the fact that many of the projects are on federal refuge lands yet nonfederal sponsors were required to cost-share the O&M. More recently, project review and approval procedures have been streamlined, with the authority to approve some of the smaller routine projects delegated to the Division Commander. Previously, every project, regardless of its cost or complexity had to be reviewed at Corps Headquarters and approved by the Assistant Secretary of the Army for Civil Works.

Report to Congress ...

Despite the accomplishments of the EMP and the advancements that have been made in the art and science of environmental restoration, there are certain limitations that those who have worked on this program have grown to realize. This fact, in combination with the impending end of the authorization in the year 2002, has prompted the basin states to call for preparation of a "report to Congress" on the EMP. Specifically, the 1986 authorizing legislation directs the Corps of Engineers to submit a report to Congress prior to the end of the authorization period. That report is to evaluate the program's strengths and weaknesses and include recommendations regarding whether the EMP should be terminated or continued and how it might be modified. While the EMP authorization does not expire for another six years, in the states' view such a report would be particularly useful now. We have learned a great deal in the past ten years and we should utilize that experience to shape improved strategies for environmental restoration on the Upper Mississippi River. The states have requested that the Corps use a portion of the EMP funding over the next two years to conduct the necessary program evaluations and work with the other EMP partners to formulate a report to Congress which not only satisfies the requirements of the law, but which would serve as the foundation for future changes to the EMP.

In closing, we urge this subcommittee to reaffirm its support for the EMP by providing the full authorized funding of \$19.455 million in FY 1996.

PREPARED STATEMENT OF KEITH G. BRISCOE, PRESIDENT, BUENA VISTA COLLEGE, STORM LAKE, IA

Mr. Chairman and distinguished members of the Subcommittee, I appreciate the opportunity to submit written testimony for the Record to the Senate Appropriations Subcommittee on Energy and Water Development on behalf of Buena Vista College and the City of Storm Lake, Iowa.

In the following testimony, I wish to inform you of an important initiative that Buena Vista College and the City are undertaking which we believe is both timely and critical to the future quality of rural America's most precious commodity -- water. The need for clean water has been and remains the single most critical natural resource issue confronting the United States. Over the years, we have witnessed the increasing pollution of groundwater sources, the depletion of clean water sources, the increased utilization of water for industry, waste disposal, recreation, and agriculture, the very life line of rural America. In addition, population concentrations in arid regions and changing climatic situations worldwide, have placed water issues at the forefront of the debate over the nation's environmental policy.

With the increasing competition for and growing scarcity of fresh, clean water in America, there is an urgent need to better understand the relationship between lake conservation and lake utilization, the role of agriculture and industry, and the dynamics of policy and economy in water issues. The country's failure to address these questions can be readily seen in numerous Army Corps of Engineers projects designed to salvage lakes experiencing eutrophy.

Erosion and flooding, particularly after heavy rainfall, has contributed to the eutrophication which plagues Storm Lake. Storm Lake is Iowa's third largest lake and of the lake's 17,000 acre watershed, approximately 80 percent (14,560 acres) is cropland in a primarily corn/soybean rotation. The remainder of the acreage is urban and transportation corridors. Like many lakes throughout America, Storm Lake is used for fishing, boating and many other recreational activities. Storm Lake is also at the critical head of a system of water that provides water to the Des Moines area approximately 250 miles south of Storm Lake.

Over the past years, the quality of the water in Storm Lake has consistently deteriorated. This is evidenced by the increasing frequency of algal bloom during the summer months. Sediment build-up due to soil erosion from the surrounding farm land has been a significant contributor to the decline in aquatic life and water quality. Storm Lake has been dredged twice in the past due to accumulated sediment. This cycle of dredging

followed by siltation then dredging again offers no long-term solutions to the problems of sedimentation.

Clearly, water runoff and flood control pose significant challenges to efforts to improve the quality of the water in Storm Lake. Land management, or the absence of it, has become a critical issue in runoff and flood control problems.

Due to the poor water drainage and massive floods that the Lake experiences, Storm Lake has been littered with profuse amounts of chemical pollutants that have virtually transformed Storm Lake from a bountiful body of water enjoyed by many to an unpleasant, polluted lake inhabited by few. This story repeats itself in lake and river front communities across the country.

Flooding and poor drainage has resulted in massive devastation across the heartland of America. For instance, eight acres of prime top soil float past Memphis every hour. The Mississippi River acts as a mode of transportation for millions of tons of topsoil from farms across its' surrounding region. Iowa, for example, once had an average of sixteen inches of the finest topsoil in the world; now that average is down to eight inches. The rest is believed to be somewhere on the bottom of the Gulf of Mexico. As flood waters carry these enormous quantities of soil into waterways, chemicals and pesticides that were used on land for various purposes, become deposited in the water that millions of Americans depend upon for drinking.

As you well know, there is a consensus in America that our water supplies are at a grave risk. The future of this natural resource is threatened if expeditious action is not taken soon to study ways that land in rural America can be utilized in a fruitful manner without destroying a resource that our very livelihood depends upon.

Water quality has become a problem that the citizens of Storm Lake have come to understand firsthand. In Iowa, and in many communities across the country, groundwater is a vital natural resource. Groundwater is the source of drinking water for the majority of Iowans. In 1985, 53 percent of the nation's total population used groundwater as their source of drinking water. In rural America, nearly all of the population's drinking water supply came from groundwater. In a number of areas across the country, the quality of groundwater has been degraded to unacceptable levels. For example, during a recent study, it was found that 33 percent of 700 wells in Iowa and 30 percent of 500 wells tested in Minnesota were infected with various pollutants. In the past, Iowans have been able to use groundwater for various purposes without having to treat the water first. The continued health, welfare and economic prosperity of all Iowans is dependent upon clean groundwater sources.

In order to better understand water quality and its relationship to land usage, the City of Storm Lake, in close collaboration with Buena Vista College and regional agri-businesses, is planning to establish a Glacial Lake Resource Institute. The Institute will be located at Buena Vista College given the capabilities of the College for such an initiative, and its prime location on Storm Lake.

Storm Lake is a natural, glacial lake of 3,080 acres. The Lake, surrounded by a heavy agricultural industry and meat processing plants, offers a natural laboratory in which to study water quality and how it is affected by the land surrounding it. In general, the Institute will perform an increasingly important task in the fight to improve the quality of our nation's waters. The Institute will undertake a comprehensive approach in addressing water quality control problems as they relate to land management.

Specifically, the Glacial Lake Resource Institute will address major concerns of the City of Storm Lake related to land use and the effects of the agricultural and industrial activity. The Institute will serve as a conservation education center to help farmers understand the environmental impacts of modern agricultural techniques and technology, and

will develop systems and procedures for regional businesses, real estate developers and governmental highway departments.

The Institute will offer a holistic approach to environmental water predicaments, in that it will study the land surrounding Storm Lake and the water within the lake itself and attempt to eradicate the numerous problems that lead to the devastating pollution that enters the water. Such information will offer solutions to land management difficulties and a better understanding of siltration and sedimentation. This information will then offer adequate methods of returning healthy aquatic life to this once vibrant body of water.

The Institute and research will serve as a model for the Army Corps of Engineers and will supply the Corps with much needed information that can be disseminated to assist in the solution to land management problems across America.

The new facility that will house the Glacial Lake Resource Institute will contain state-of-the-art laboratories and modern scientific instrumentation that will enhance the region's preparedness to conduct the type of lake and inland water supply studies and education that are necessary to solve some of the nation's most pressing natural resource questions. In all, the Institute will perform a critical and logical task.

With the effects of soil erosion, flooding and poor drainage threatening the livelihood of water supplies, the need for research and education become increasingly imperative. As the American population grows and farms expand in size, the imperative to understand and manage land use becomes more critical. Through the partnership with the City of Storm Lake, the Glacial Lake Resource Institute at Buena Vista College will supply the local community and the nation with urgently needed information regarding the various problems related to rural land management and its impact on preserving the quality of aquatic life and recreational activities on Storm Lake.

The City of Storm Lake has a very close relationship with Buena Vista College. It has provided excellent support to the institution, its programs and people. Civic organizations such as the Lake Preservation Association have used the College's lake study resources to prepare conservation measures. Likewise, the College provides regular monitoring and consulting services to the City Sewer and Water Department. The City recognizes the importance of the Lake to its own well being and is prepared to offer the College its full support in investigations aimed at Storm Lake.

Mr. Chairman, I ask for your serious consideration and support of this initiative within the FY 1996 Energy and Water Development Appropriations bill. Buena Vista College has shown its interest in understanding the land use problems and their effects on Storm Lake by dedicating its substantial campus facilities and the land required to build the Institute. The Glacial Lake Resource Institute will require new highly sophisticated laboratories and new instrumentation and equipment. We are seeking to establish a federal partnership in FY1996 and therefore respectfully request funding assistance of up to \$6.5 million.

Thank you, Mr. Chairman and members of this Subcommittee, for the opportunity to submit written testimony for the Record.

PREPARED STATEMENT OF JAY B. KIMBLE, MAYOR, CITY OF STILLWATER,
MN

Chairman Domenici, and Members of the Appropriations Subcommittee, I appreciate the opportunity to submit this testimony requesting \$1.8 million in federal funds to complete the first phase of the retaining wall system on the St. Croix River at Stillwater, Minnesota. The retaining wall protects the fragile riverfront, and the floodplain of

downtown Stillwater from high water levels and the flooding that occurs each spring. I would like to request that the full text of my statement be included in the record.

The project was authorized for \$3.2 million in the Water Resources Development Act of 1992, and this Committee appropriated \$2.4 million in federal funds for the purpose of designing, repairing, extending, and expanding the levee system. The Minnesota Legislature as set aside \$400,000 in State funds for the first phase of the project, and the MN Department of Natural Resources has established the project as the top priority for \$350,000 in additional funding in 1996, to complete the project. The City of Stillwater has allocated \$750,000, which in combination with State funding, will provide all the required non-federal matching funds for the project.

Phase I includes the repair and reconstruction of the existing 1,000 foot levee wall, the extension of the wall 900 feet to the north where annual flooding occurs, and the use of riprap 350 feet to the south of the structure where severe erosion has occurred.

Phase II includes the construction of a secondary flood wall approximately 125 feet west of the existing structure. The wall will extend approximately two feet above the ground, with sheet piling driven 15 to 20 feet below the surface. This wall will provide the City with a 50-year flood protection plan, and with sandbagging, a 100-year protection. The Army Corps of Engineers has developed plans and specifications for both Phase I and Phase II of the project included in the "Design Memorandum" completed in March, 1995.

The completion of both phases of the project will require total resources of \$9.8 million in Federal, State and local funds of which \$2.4 million in Federal dollars were designated in the FY 1994 Appropriations Act. The completion of Phase I will require \$1.8 million in Federal funds, and the completion of Phase II will cost an additional \$3.1 million for the Federal share of the project. State and local resources will provide the 25% non-federal share.

While we would like to request funds to complete both phases of the project, we are aware of the tight budget parameters under which this Committee is working. We are, therefore, giving our first priority to the allocation of only those funds in the FY 1996 appropriations bill that can resolve the most critical problem facing our community, that is, the complete destruction of the levee wall protecting our City. This will require a \$1.8 million increase in the Federal funds appropriated in FY 1994. They will be used to complete the repair, reconstruction, and extension of the damaged levee wall system.

The Retaining Wall and Current Conditions

The wall system and the foundation on which the lower wall rests has experienced severe erosion over the past ten years or so. Preliminary reports by the Corps of Engineers and the engineering firm of Short, Elliott, and Hendrickson (SEH), warn that extensive repair, replacement, and extension of the wall system must be initiated immediately.

The retaining wall system was built by the Works Progress Administration (WPA) in 1937-38, to provide protection to the commercial section of the City, and the docking areas of boats and barges. Fifty-five years ago, there was a crisis, just as there is today. The Corps was building a new lock dam on the Mississippi River at Red Wing, Minnesota that would back up the waters of the St. Croix. The earthen and stone levee of the early 1930's, gave the City some protection, but would quickly wash away with the high waters

that would surely follow when the Red Wing Dam was completed, and the break up of the ice each spring.

Stillwater is located on the West bank of the St. Croix River. It provides the boundary line between Minnesota and Wisconsin for about 120 miles until the St. Croix flows into the Mississippi River. The St. Croix is one of America's first "Wild and Scenic Rivers," and is subject to the legislation that protects these beautiful landmarks of our nation. One of the few lift bridges in the upper Midwest spans the river from Stillwater to Houlton, Wisconsin. The base of the bridge is built into the levee wall. The failure of the wall at that point would result in the closing of the bridge for some time, according to the U.S. Army Corps of Engineers.

An emergency city street runs parallel to the upper section of the wall. The roadway is used by the City for wall maintenance, emergency medical and river rescue work, and serves the fire department by providing access to river water during fire emergencies in historic downtown Stillwater. It also provides access to several businesses that are located close to the river on the north and south ends of the wall system. The street is flooded annually in the spring for 30 to 45 days, restricting any traffic to the northern section of the river frontage. This flooding occurs past the north end of the existing retaining wall, and extends about a thousand feet past the end of the levee wall. The proposed extension of the wall, and the raising of the level of the flood plain with fill, would have eliminated this problem every year but two, since 1950.

Extensive work on the sewer system in downtown Stillwater was completed in the fall of 1992. The most serious concern, however, is the major sanitary trunk sewer line which services the City. It is located less than 100 feet from the levee wall, and runs parallel to, the wall. Given the content of the soil in that area, the failure of the wall toward the south end of the levee could result in the failure of the pumping system, and the dumping into the river, much of the 1.9 millions gallons of raw sewage that passes through the system each day. The Metropolitan Waste Control Commission and the Minnesota-Wisconsin Boundary Area Commission have expressed their concerns and fears to the City of Stillwater about this pending disaster.

Soil Condition Suspect

The history of Stillwater has a direct bearing on the crisis that now exists. First established as a settlement in 1838, and founded in 1843, Stillwater became the most productive logging and sawmill operation in the upper Midwest, as well as a major commercial and industrial center. By 1874, 3.5 billion board feet of logs went through the St. Croix boom, and nine sawmills were in operation in Stillwater. The lumbering industry did not reach its peak until 1895, when 373 million board feet of lumber were shipped.

It was this vigorous industry, more than a century ago, and the nine sawmills that lined the riverbank, that is the basis for much of our concern today. Studies by the Army Corps of Engineers stated that, ". . . . *Subsurface soils investigations along the waterfront in Stillwater identified pieces of glass, wood and/or layers of sawdust to depths of more than 20 feet below the ground surface as remnants of the early logging and sawmill activities.*"

Another study by the U.S. Army Corps of Engineers warns that in case of wall failure, ". . . *erosion would progress at a very swift rate.*" The 1986 Feasibility Study by the Corps

stated that soil conditions would create an *"unfavorable structural foundation for earthen levees and similar structures."* The report excludes other options by stating that, *"The extent of wood and sawdust precludes the economics of excavating to remove these materials and backfilling with satisfactory soil."*

According to the District Office of the Army Corps of Engineers technical analysis in March, 1992, it was stated that,

"There is a strong likelihood that the wall in Stillwater could experience a significant failure within the next two years. Because this whole section of the riverfront property was created by filling during the logging era, soil conditions are suspect. . . Some areas neighboring this threatened portion of the river have known pockets of sawdust fill. Given these conditions, once the wall failed, erosion would progress at a very swift rate."

We have been fortunate the entire system as not collapsed in the three years since study warned of the pending disaster. The 1993 floods, and continuing erosion have created an even greater threat than existed in the 1991 study. Examinations of the structure in 1994 have shown vastly expanded voids in the walls, new cracks have appeared as the walls have shifted, and further deterioration of the area supporting the interstate bridge has become evident.

Failure of the Wall System

The SEH Engineering firm concurred with the analysis of the Corps, and the subsequent result of such a failure. They have conducted two studies and on-site inspections of the retaining wall system; the first in 1987, and the second in 1991. We have provided each Member of this Subcommittee with exhibits and photographs of the wall, that show the extent of damage to the walls, wharf, and foundation. The two studies, four years apart, have enabled the engineers to determine the rate of deterioration of the structure. Some of the findings determined by the studies were;

1. The failure of the wall south of the bridge, where both the lower wall and wharf have failed, has resulted in the washout of the soil causing the upper wall to shift forward;
2. While 150 feet of the wall had failed at the time of the 1987 study, more than 50 additional feet has washed out by 1991. It is now estimated that more than 40% of the wall has collapsed.
3. Sixty to 250 square foot voids were found underneath the slabs. The voids and gaps under the wall system have made the lower wall vulnerable to an even more rapid deterioration of the levee. The six inch concrete slabs which form the wharf, are disintegrating as a result of the soil erosion beneath the structure.

A 1987 assessment of property values by the Federal Emergency Management Agency (FEMA) has established the value of the property at \$32 million in the floodplain area. The Corps' Feasibility Study noted that Stillwater is enrolled in the National Flood Insurance Program. Future flooding of the area would prove costly to the federal and state governments, as well as the City. Since the 1987 assessment the City has spent more than \$7 million in infrastructure improvements in the downtown area that lies in the floodplain of the St. Croix.

Historical Significance of the Project

The historic implications of the retaining wall system, and its solution, are extremely important to the entire State. In recognition of the historical significance of Stillwater as the "Birthplace of Minnesota," the U.S. Army Corps of Engineers conducted an excellent study completed in July, 1985, entitled, "Historical Reconstruction of the Riverfront: Stillwater,

The purpose of the study was to provide the Corps of Engineers with information to be used in the review of options for flood control of the downtown area of Stillwater. The research identified 117 sites in the floodplain as being significant to the entire State. Twenty-three of these sites are listed on the "National Register of Historic Places" by the U.S. Department of Interior. All are threatened by the deterioration and failure of the retaining wall system, and the flooding of the area.

The U.S. Army Corps of Engineers is obligated to protect the cultural or man-made environment, according to their 1985 Study. This obligation is embodied in the National Historic Preservation Act of 1966, and subsequent laws. The study states that these laws set forth federal leadership in locating, inventorying, and protecting such sites. The proposed reconstruction and extension of the retaining wall system does not threaten, damage, or destroy any of the identified historical sites of the area. The project as authorized in P.L.102-580 would provide the protection necessary to preserve these historical structures for future generations.

St. Croix River Flood Control Studies and Federal Involvement

Both the upper and lower St. Croix River has been under almost continuous federal, state, and local government studies since 1954. The U.S. Corps of Engineers completed the "St. Croix River Final Feasibility Report and Environmental Assessment" in July, 1986. The initial study of the St. Croix River basin was started in 1965, suspended in 1968, and restarted in 1982, at the request of the City. A reconnaissance study by the Corps of Engineers was completed in 1983. This was followed by the study by the Corps, "Historical Reconstruction of the Riverfront: Stillwater, Minnesota."

While the feasibility study of 1986, was very thorough in most respects, it failed to address the condition of the retaining wall system and its function in flood control in Stillwater. It did, however, fully address the myriad of issues required in flood control projects such as the environment, physical characteristics of the area, fish and wildlife, an analysis of the river flow, past history of flooding, and many others. Earlier studies directed by Congress and/or conducted by the Corps of Engineers which included the St. Croix River, go back to the beginning of the century. They include studies in practically every decade since 1930.

The St. Croix River at Stillwater, MN is under Federal control and management. The Corps of Engineers is also responsible for the dredging of the channel in the St. Croix River at Stillwater. Barge traffic, boat construction, commercial passenger traffic, and extensive recreational boating continue to maintain a very active port at Stillwater. It is this very activity that has contributed to the deterioration of the retaining wall system, according to the engineers. The Coast Guard shares responsibility with the States of Wisconsin and Minnesota in patrolling the River.

Action Requested

Based on the information and data from the "Design Memorandum" prepared by the U.S. Army Corps of Engineers, studies by the State of Minnesota, and Short, Elliott, Hendrickson firm on behalf of the Stillwater, MN, \$1.8 million is requested to complete the first phase of the construction authorized by Congress in FY 1992, for which \$2.4 million was appropriated in FY 1994. Such funds will be used to:

1. Complete the repair of the existing walls when such repair is possible;
2. Complete the replacement of the structure when the deterioration has progressed to such an extent to warrant such action;
3. Extend the system 350 feet to the south, using riprap to prevent the continuing erosion of the area around the south end of the wall;
4. Extend the wall 900 feet to the north of the existing wall, and by raising the area with fill by approximately five feet.

Current plans call for construction to begin in March, 1996, on Phase I of the project. Funds available under the FY 1994 appropriation have provided funds for the development of plans, specifications, and design of the project, the "Design Memorandum," environmental studies, and will permit the repair to begin on the damaged levee wall system. There are not sufficient funds available to either complete the necessary repairs, nor the extensions of the system to the north and south. The construction of the flood wall will be included in Phase II of the project.

As proposed, the project will assure the continued flood protection provided by the existing retaining wall system, and eliminate the annual flooding of the emergency access road assuring the year-around availability of fire and rescue services. It will provide fifty year flood protection to 130 retail operations, and \$32 million in property value, provide a knee-wall to serve as a base for emergency sandbagging during extreme flood conditions, thus protecting the property of the City, and the history of the "Birthplace of Minnesota."

We are in compliance with the National Environmental Protection Act, and have met the special provisions of federal and state laws that effect the wild and scenic rivers, and other state and federal laws that protect the environment and historical sites. We have been working with these agencies over the three years in anticipation of construction and extension of the retaining wall system, and have a summary listing of their letters of support for the project.

For these reasons, we respectfully request that this Subcommittee amend the appropriation for the St. Croix River at Stillwater, Minnesota in the FY 1994 Appropriations Act by increasing the Federal share by \$1.8 million. Such funds will be used to complete the repair, construction, and extension of the retaining wall system. Thank you for the opportunity to bring this critical matter to your attention through this testimony, and urge the increased appropriation for this project. I will be pleased to respond to any questions you may have.

PREPARED STATEMENT OF THE ASSINIBOINE AND SIOUX TRIBES, FORT PECK RESERVATION, MT

The Assiniboine and Sioux Tribes (Tribes) request that funding be provided in the General Investigation Budget of the Bureau of Reclamation to begin the design of a municipal, rural, and industrial water system for the Fort Peck Reservation (Reservation) in Montana. The funding requested for FY 1996 is \$200,000.

In our testimony to this Committee last year, we explained the background and need for this project. Our goal is to ensure that a safe and reliable MR&I water supply will be available throughout the Reservation. This is vital to improving and sustaining public health and promoting the Tribes' economic self-sufficiency. The Committee has supported this project, by providing \$150,000 in FY 1995 to enable us to undertake a feasibility study. The requested funds will permit us to continue moving forward with this important project.

A. Needs Assessment

In October of 1993, we completed an assessment of the municipal, rural, and industrial water needs of our Reservation. The objective of the study was to document existing water supply sources currently serving the Reservation, and to identify any water quality problems involving these sources.

The needs assessment documented the deficiencies, both in quantity and quality, of the water supply for Indian and non-Indian residents on the Reservation in northeastern Montana. This needs assessment also examined the current and expected future water needs of the Reservation. The study confirms the need for an MR&I project for the Fort Peck Reservation.

As the needs assessment documented, we have been plagued by major drinking water problems on the Reservation - including both an inadequate supply and unacceptable quality of our water. Groundwater, the primary source for many residents, often exceeds the standards for total dissolved solids, iron, sulfates, nitrates, and in some cases for selenium, manganese, and fluorine. Bacterial contamination of municipal water distribution systems has also been a recurring problem.

Several of our local water systems have had recent occurrences of biological contamination. As a result, the Indian Health Service and the Tribal Health Office have issued several public health alerts encouraging users to boil the water before drinking it. In short, a new water system is needed to protect the health of our people.

In addition, a new water system is needed to assist our efforts to expand our economy. Our economy is based on ranching and farming - with cattle serving as the primary economic activity on the Reservation. Most livestock operations on the Reservation are cow-calf and the herd sizes are generally small. Increasing the herd size would represent an opportunity to increase household income and stimulate retail trade. A major constraint on expanding herd size is the lack of available sites for watering cattle. A Reservation-wide MR&I system could provide needed pasture taps for livestock watering which could boost the local economy. In addition, distributing livestock water to pasture taps at different locations throughout the range would be an effective measure for soil conservation and range management.

The needs assessment predicted an increased use of water of about 2.6 million gallons per day. Based on this estimate, it is clear that additional MR&I water supplies and facilities will be required to meet the future water needs of the Reservation. It is estimated that the average monthly water use in the year 2030 will be almost 81 million gallons per month and the average annual water use will be about 950 million gallons per year.

B. Feasibility Study

Once the needs assessment was completed, the Tribes requested the Bureau of Reclamation to undertake a feasibility study of constructing an Reservation wide MR&I project. Burec has conducted that study, with funds provided by this Committee. The initial phase of this study shows that a regional MR&I water supply system using Missouri River water as the supply source is a feasible alternative for addressing the water quality problems that currently exist. Such a project would bring safe and reliable water to rural residents of our Reservation not currently served by a public water system.

The Tribes plan to meet their MR&I needs with a Reservation-wide piped distribution system to supplement or replace existing water sources. This type of system has been successfully used in South Dakota (the WEB project) and brings economies of scale to reduce project construction and operation and maintenance costs.

C. Resources available to the Reservation

The Fort Peck Tribes have a reserved water right to the Missouri River. The quality of Missouri River water, particularly in the Fort Peck Reservoir, is much better than our groundwater and would serve as the best source for MR&I water on the Reservation. Missouri River water generally meets all primary and secondary drinking water standards, unlike most groundwater sources found on the Reservation. The Missouri River is being used extensively for MR&I water projects and could meet present and future Reservation needs at Fort Peck.

Conclusion

We have made considerable progress with the completion of our feasibility study. The next phase of project is design. The expected cost of design for the system is \$200,000. We request that the Committee provide these funds to enable us to continue with this important project.

PREPARED STATEMENT OF AMOS S. ENO, EXECUTIVE DIRECTOR, NATIONAL FISH AND WILDLIFE FOUNDATION

The National Fish and Wildlife Foundation appreciates the opportunity to submit written testimony to the Subcommittee on Energy and Water Development Appropriations, to assist in the Subcommittee's review of the proposed FY 1996 budget of the Bureau of Reclamation (BOR). The President's budget for the Bureau includes \$3.255 million for the Foundation within the agency's Construction account. Although the Foundation has in the past occasionally undertaken some small amount of work for the Bureau, this marks the first year we are explicitly in the Administration's budget for BOR.

The National Fish and Wildlife Foundation (NFWF) is a 501(c)(3) nonprofit organization created by Congress in 1984, and dedicated to the conservation of natural resources -- fish, wildlife, and plants. Among its goals are species habitat protection, environmental education, natural resource management, habitat and ecosystem rehabilitation and restoration, and leadership training for conservation professionals. It meets these goals by forging partnerships between the public and private sectors, and by supporting conservation activities that pinpoint and solve the root causes of environmental problems.

We appreciate the fact that the Subcommittee is under considerable pressure to reduce spending. We respectfully suggest that by funding the Foundation at the level requested in the President's budget, the Subcommittee will be able to achieve results that are three times greater than what one would normally achieve from a relatively small investment in Federal funds. Furthermore, by investing in the Foundation now, the Subcommittee may avoid fish and wildlife conflicts that might otherwise lead to far larger expenditures in the future.

Bottom Line: doing more with less, shrinking potential Federal liabilities

What can NFWF do for the Bureau of Reclamation and this Subcommittee? We can help the Bureau make the transition from a construction agency to a water resource management agency, by showing it how to engage in cooperative resource management partnerships with the water user community. We have the ability to put together partnerships that bridge traditional interests.

We can head off potential endangered species problems associated with Reclamation water projects, which ultimately might pose expensive problems for this Subcommittee, by working up-front with local communities and the Bureau to improve fish and wildlife habitat and populations that might otherwise deteriorate to the point of being listed under the Endangered Species Act (ESA). Many ESA candidate species are aquatic, or rely on aquatic habitats and associated wetlands and riparian habitats, particularly in the western states served by BOR. As a result, there is considerable potential for operational disruption of Bureau water projects, harmful local economic impacts, and political and financial problems for the Department and the Congress. The Foundation can help BOR take practical steps to lessen or avoid these problems, establish an atmosphere of cooperation rather than antagonism between the Bureau and the local community, and provide a series of positive examples that can be emulated not only across the Reclamation states, but throughout the country.

It is axiomatic that an ounce of prevention is worth a pound of cure. With the leveraging resources of the Foundation, this Subcommittee is only being asked to make a third of an ounce of investment in prevention. We will triple your money and solve real-world problems far more amicably, cost-efficiently, and quickly than would be the case if fish and wildlife problems associated with Bureau water projects were addressed by the Bureau alone.

Mechanics of how funding decisions would be made

The Foundation would work with the Bureau in selecting specific projects in the same rigorous, peer-review manner we deal with other agencies that are appropriated funds for use in our public-private sector partnerships. Foundation staff would work closely with Bureau regional offices and headquarters to identify priority watersheds and assist the Bureau with establishing a cooperative track record with water users and landowners on fish and wildlife conservation issues. The Foundation would actively look for on-the-ground partners in those areas, as well as entertain unsolicited grant applications from individuals or groups who propose to undertake conservation projects in Reclamation states.

All potential grants would be subject to a peer review process, involving state and federal agency staff, academics, commodity and environmental interests, and other recognized experts. The review process examines the project's technical merit, the degree of interest in the local community, the variety of partners who are willing to participate, and the amount of non-Federal cost-share that is proposed. If the proponent of an otherwise highly meritorious project is unable to provide the minimum necessary cost-share, the Foundation will work with the project proponent to identify and solicit corporate or other sponsors for the project in question. If necessary, we work with potential grantees to improve the quality of their grant proposal.

Projects recommended for funding by NFWF staff are fully reviewed by Bureau regional and Washington office staff before being presented to the NFWF Board for approval. The Foundation requires strict financial reporting by grantees, and we ourselves are subject to an annual audit. In addition to our own audits, NFWF is also routinely audited by our federal partners. In 1993, the Foundation underwent an audit by the Inspector General of the Interior Department, which we passed with flying colors.

In March, 1994, the Foundation and the Bureau of Reclamation entered into a Memorandum of Understanding that outlined principles for cooperative work. This document would be the point of departure for more detailed accounting arrangements that would be agreed to before the Foundation would actually receive appropriated funds from the Bureau.

Relevance to the Bureau of Reclamation

The Bureau of Reclamation has shifted from a construction agency, responsible for building dams and water delivery systems, to a water resources management agency that must be concerned about a host of issues. The Bureau manages 8.5 million acres of land and water, provides irrigation water to 9.8 million acres of agricultural lands, and controls releases to thousands of miles of streams and rivers. As water is often the single most precious commodity -- both for man and other parts of the ecosystem -- in the West, the Bureau has a tremendous ability to benefit or harm natural resources.

To adequately address the resource challenges facing fish and wildlife, the Bureau needs creative solutions and the development of new partnerships among federal and state agencies and private sector. This is exactly what the National Fish and Wildlife Foundation can deliver. Several projects supported by NFWF are illustrative of how we work and what could be expected should we initiate a challenge grant program with the Bureau:

On the Crooked River in central Oregon, for example, a Foundation "Bring Back the Natives" grant has united diverse interests into the Crooked River Ecosystem Education Council, which is using an imaginative and effective blend of restoration, habitat protection, private landowner involvement, facility development, and public education to restore the river's aquatic health. "Bring Back the Natives" is an unprecedented partnership involving commodity groups, industry, municipalities, state and federal agencies, private landowners, and the National Fish and Wildlife Foundation aimed at restoring entire stretches of river for native fish and mussel species. The program has transcended jurisdictional lines to become a highly effective conservation venture; to date, 41 projects involving more than 1,900 miles of riverine habitat have been initiated. A significant fraction of this work has benefited areas where the Bureau of Reclamation has ongoing responsibilities.

In New Mexico, we have provided a grant to the Rio Grande Bosque Task Force for the development of an integrated management strategy for the Middle Rio Grande Bosque, a unique and highly complex ecosystem that is home to a variety of river and riparian species of flora and fauna. The Bosque area is subject to development pressures and invasion by exotic species. The state government has appointed a task force, whose work was facilitated by the Foundation's grant.

Basic Facts About the Foundation

The Foundation is authorized to receive Federal appropriated funds, and last year this funding authorization was extended through FY 1998. The authorized funding level for FY 1996 is \$25 million. The Foundation invests in the best possible solutions to conservation problems by awarding challenge grants using its federally appropriated funds to match private sector funds. We have a statutory requirement to match Federal funds with at least an equal amount of non-Federal funds. We have an internal policy requiring at least a 2:1 overall matching ratio, and we consistently exceed this. These combined Federal/non-Federal resources fuel effective conservation projects. No Federal appropriations are used to meet NFWF's administrative expenses; these administrative costs are covered through separate private fundraising activities. All appropriations made available for NFWF by this Subcommittee will support on-the-ground projects, at the rate of roughly \$3 of activity for every Federal dollar appropriated. No funds we dispense are used for lobbying, litigation or other advocacy activities.

We would be happy to provide any additional information or answer any questions for the Subcommittee.

SOUTHWEST WATER RESOURCE DEVELOPMENT PROJECTS
PREPARED STATEMENT OF THE TRINITY IMPROVEMENT ASSOCIATION

ON BEHALF OF THE TRINITY RIVER OF TEXAS DELEGATION, THE TRINITY IMPROVEMENT ASSOCIATION RECOMMENDS THE SUPPORT OF CONGRESS FOR THE FOLLOWING CORPS OF ENGINEERS PROJECTS IN CONSIDERING THE ENERGY AND WATER DEVELOPMENT APPROPRIATION BILL FOR FY 1996.

FUNDING REQUESTS:**BUDGET REQUEST:****PROJECT****SURVEYS, ADVANCED ENGINEERING & DESIGN**

DALLAS FLOODWAY EXTENSION - DALLAS, TX	\$500,000
UPPER TRINITY RIVER BASIN, TX	\$304,000

CONSTRUCTION

RAY ROBERTS LAKE, TX	\$3,500,000
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OPERATIONS & MAINTENANCE

BARDWELL LAKE, TX	\$1,210,000
BENBROOK LAKE, TX	\$1,610,000
COOPER LAKE, TX	\$874,000
DENISON DAM, TX	\$6,033,000
GRAPEVINE LAKE, TX	\$1,956,000
JOE POOL LAKE, TX	\$810,000
LAVON LAKE, TX	\$2,303,000
LEWISVILLE LAKE, TX	\$2,798,000
NAVARRO MILLS LAKE, TX	\$1,388,000
RAY ROBERTS LAKE, TX	\$783,000
WALLISVILLE LAKE, TX	\$473,000
TRINITY RIVER & TRIBUTARIES, TX	\$1,270,000

ADDITIONAL FUNDING REQUEST:**WALLISVILLE LAKE, TX**

IT IS REQUESTED THAT FUNDS IN THE AMOUNT OF \$5,000,000 BE APPROPRIATED TO SUPPORT THE CORPS OF ENGINEERS EXPRESSED CAPABILITY FOR CONTINUING CONSTRUCTION OF THE WALLISVILLE PROJECT.

DALLAS FLOODWAY EXTENSION, TX

IT IS REQUESTED THAT LANGUAGE BE INCLUDED DIRECTING THE SECRETARY OF THE ARMY TO CREDIT THE CITY OF DALLAS FOR FUNDS SPENT ON CONSTRUCTION OF FLOOD CONTROL PROJECTS THAT ARE PART OF THE 1965 AUTHORIZED FEDERAL FLOOD CONTROL PROJECT FOR EXTENDING THE DALLAS FLOODWAY.

* SUGGESTED LANGUAGE IS ATTACHED.

FLOODWAY AUTHORIZATION

(1) The Secretary is directed to credit non-Federal interests, against the non-Federal share of project costs for the Dallas Floodway Extension, Dallas, Texas Project, authorized by section 301 of the River and Harbors Act of 1965 (79 Stat.1091), including any modification thereof, the cost of work performed by the non-Federal interests in constructing flood protection works for Rochester Park and the Central Wastewater Treatment Plant Levees.

(2) Nothing in this subsection shall be construed to limit the applicability for the requirement contained in section 103(a)(1)(A) of the Water Resources Development Act of 1986.

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

MY NAME IS PRESTON M. GEREN, JR., OF FT. WORTH, TEXAS, AND I AM CHAIRMAN OF THE TRINITY IMPROVEMENT ASSOCIATION. I HAVE BEEN ASKED TO SERVE AS SPOKESMAN FOR THIS DELEGATION WHICH REPRESENTS INTERESTS FROM THROUGHOUT THE TRINITY RIVER BASIN AND THE CITY OF HOUSTON WHICH IS OUTSIDE THE BASIN BUT RECEIVES WATER FROM IT. THE DELEGATES INCLUDE MAYORS AND COUNCIL MEMBERS, OFFICERS OF RIVER AUTHORITIES AND WATER DISTRICTS, PORT COMMISSIONERS, WATER UTILITY MANAGERS AND OTHER SERVICE ORGANIZATION OFFICIALS. I MIGHT ADD THAT ALL HAVE TRAVELED TO WASHINGTON AT THEIR OWN EXPENSE. WHILE THE GROUP IS DIVERSE GEOGRAPHICALLY, IT IS UNITED IN PURPOSE.

YOU HAVE HEARD TESTIMONY FROM OUR CONGRESSIONAL REPRESENTATIVES CONCERNING SOME OF OUR NEEDS. WE WANT NOW TO PRESENT SPECIFIC COMMENTS AND RECOMMENDATIONS ON THE FY 96 BUDGET PROPOSALS.

A SUMMARY OF PROJECTS WHICH WE SPECIFICALLY SUPPORT APPEARS AT THE BEGINNING OF OUR WRITTEN TESTIMONY. IT ITEMIZES THE FY 1996 BUDGET REQUEST FOR \$25,812,000 FOR 15 PROJECTS AFFECTING THE TRINITY RIVER BASIN. THIS IS \$6,982,000 LESS THAN REQUESTED FOR FY 1995.

WE ARE ALSO REQUESTING FUNDS IN THE AMOUNT OF \$5,000,000 TO SUPPORT THE CORPS OF ENGINEERS EXPRESSED CAPABILITY FOR CONTINUING CONSTRUCTION OF THE WALLISVILLE PROJECT. WITHOUT WALLISVILLE, THE CITY OF HOUSTON'S WATER REQUIREMENTS WILL EXCEED THE AVAILABLE SUPPLY BY THE YEAR 2010, A TIME THAT IS JUST AROUND THE CORNER IN WATER RESOURCE DEVELOPMENT TERMS. YOU WILL HEAR MORE ON THIS SUBJECT FROM THE GENERAL MANAGER OF PUBLIC UTILITIES FOR THE CITY OF HOUSTON.

ADDITIONALLY, WE REQUEST THAT LANGUAGE BE INCLUDED IN THE AUTHORIZATION BILL DIRECTING THE SECRETARY OF THE ARMY TO GIVE CREDIT TO THE CITY OF DALLAS FOR FUNDS THAT THE CITY HAS EXPENDED ON PROJECTS THAT ARE PART OF THE AUTHORIZED DALLAS FLOODWAY EXTENSION PROJECT. WE HAVE INCLUDED A DRAFT OF SUGGESTED LANGUAGE AND DALLAS CITY COUNCILMAN DUNCAN WILL SPEAK ON THIS REQUEST.

WE WOULD LIKE TO EXPRESS CONCERN OVER THE MAJOR POLICY CHANGES IN FEDERAL SUPPORT OF FLOOD CONTROL PROJECTS EXPRESSED BY THE ACTING ASSISTANT SECRETARY OF THE ARMY FOR CIVIL WORKS WHICH WOULD SEVERELY REDUCE THE CORPS OF ENGINEERS PARTICIPATION IN SOLVING THE NATION'S EFFORTS TO REDUCE FLOOD DAMAGE. THE SUGGESTED APPROACH WOULD DO LITTLE TO SOLVE EXISTING PROBLEMS AND THE FEDERAL GOVERNMENT WOULD CONTINUE TO BE FACED WITH MASSIVE EXPENDITURES TO REPAIR CATASTROPHIC DAMAGES SUCH AS THOSE RECENTLY EXPERIENCED ON THE MISSISSIPPI RIVER IN CALIFORNIA.

FINALLY, MR. CHAIRMAN, I WISH TO POINT OUT FOR THE RECORD THAT A COMPLETE LIST OF OUR DELEGATION APPEARING HERE TODAY AND COPIES OF THE TESTIMONY TO BE GIVEN BY OUR GROUP HAS BEEN SUBMITTED TO THE COMMITTEE.

WITH THESE REMARKS, I WOULD LIKE TO CALL ON A FEW MEMBERS OF THE DELEGATION WHO WILL SPEAK BRIEFLY ON PROJECTS OF SPECIFIC CONCERN TO THEIR AREAS.

THE FIRST SPEAKER WILL BE **MR. MAURICE LOCKE**, PRESIDENT, TRINITY RIVER AUTHORITY.

(MR. LOCKE MAKES HIS STATEMENT)

THE NEXT STATEMENT WILL BE BY THE HONORABLE LARRY DUNCAN, COUNCILMAN, CITY OF DALLAS.

(COUNCILMAN DUNCAN MAKES HIS STATEMENT)

NEXT WILL BE MR. GARY SKAGGS, CHAIRMAN OF THE TRINITY STEERING COMMITTEE OF THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS.

(MR. SKAGGS MAKES HIS STATEMENT)

NEXT WILL BE MR. JIM OLIVER, GENERAL MANAGER, TARRANT COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT.

(MR. OLIVER MAKES HIS STATEMENT)

THE NEXT SPEAKER WILL BE MR. FRED PERRENOT, GENERAL MANAGER OF PUBLIC UTILITIES FOR THE CITY OF HOUSTON.

(MR. PERRENOT MAKES HIS STATEMENT)

NEXT WILL BE MR. JEFF WINTER, COMMISSIONER, PORT OF LIBERTY.

(MR. WINTER MAKES HIS STATEMENT)

MR. CHAIRMAN, ON BEHALF OF THE WHOLE DELEGATION, PLEASE ACCEPT OUR APPRECIATION FOR THE EXCELLENT JOB YOU AND YOUR COMMITTEE HAVE DONE, IN THESE DIFFICULT TIMES, IN SUSTAINING SOUND WATER RESOURCE DEVELOPMENT PROGRAMS THAT HAVE PROVEN THEIR ENVIRONMENTAL AND ECONOMIC WORTH. THANK YOU FOR ALLOWING US TO APPEAR BEFORE THIS COMMITTEE. AS WE STATED LAST YEAR, WE STAND READY TO BEAR OUR PART OF THE BURDEN. WE ASK ONLY THAT THE RETURN ON INVESTMENTS TO THE NATION'S ECONOMY AND THE SOUNDNESS OF

FEDERAL PARTICIPATION IN TRINITY RIVER BASIN WATER RESOURCES DEVELOPMENT BE TAKEN INTO CONSIDERATION IN ARRIVING AT YOUR DECISIONS.

AS ALWAYS, IT HAS BEEN A PLEASURE TO APPEAR BEFORE YOU.

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

MY NAME IS MAURICE LOCKE, AND I SERVE AS PRESIDENT OF THE TRINITY RIVER AUTHORITY OF TEXAS BOARD OF DIRECTORS.

TRA SUPPORTS THE LEVEL OF CAPABILITY EXPRESSED BY THE U.S. ARMY CORPS OF ENGINEERS FOR PROJECTS LOCATED IN THE TRINITY RIVER BASIN.

WALLISVILLE SALTWATER PROJECT

CONSTRUCTION ON THE WALLISVILLE SALTWATER PROJECT RESUMED IN 1991, AND IF THE CORPS' FY 1996 \$5 MILLION SPENDING CAPABILITY IS FUNDED BY THIS COMMITTEE, THEY WILL BE ABLE TO AWARD THE FINAL CONSTRUCTION CONTRACT LATER THIS YEAR. AS ONE OF THREE LOCAL SPONSORS, THE TRINITY RIVER AUTHORITY URGES THIS COMMITTEE TO CONTINUE FUNDING THIS IMPORTANT PROJECT.

THE WALLISVILLE SALTWATER BARRIER PROJECT WILL PROVIDE PROTECTION FROM SALTWATER INTRUSION FOR THE RICE INDUSTRY IN LIBERTY AND CHAMBERS COUNTIES. WITH THE COMPLETION OF WALLISVILLE, TRA AND THE CITY OF HOUSTON WILL BE ABLE TO COMPLETE A LONG-TERM WATER PROJECT FOR THE CITIZENS OF THE LOWER TRINITY RIVER BASIN AND THE GREATER HOUSTON AREA. THE PROJECT WILL ALSO ENABLE THE REDUCTION OF SUBSIDENCE PROBLEMS IN THE COASTAL AREA.

UPPER TRINITY RIVER BASIN

FLOODING AND FLOOD CONTROL HAVE RE-EMERGED AS HIGH PRIORITY ISSUES IN THE DALLAS/FORT WORTH METROPOLITAN AREA. NINE CITIES, THREE COUNTIES, TRA AND ONE OTHER SPECIAL PURPOSE DISTRICT ARE PARTICIPATING IN A FEASIBILITY STUDY WITH THE CORPS OF ENGINEERS TO ASSESS AN ARRAY OF OPTIONS RELATED TO FLOODING ISSUES. AN ADDITIONAL \$304,000 WILL CONTINUE THIS STUDY EFFORT AND WE REQUEST YOUR APPROVAL OF THIS APPROPRIATION.

TRINITY RIVER AND TRIBUTARIES

THE GALVESTON DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS HAS EXPRESSED A CAPABILITY OF \$1,270,000 FOR OPERATIONS AND MAINTENANCE ACTIVITY ALONG THE LOWER TRINITY RIVER NAVIGATION CHANNEL. WE REQUEST YOUR SUPPORT FOR THIS APPROPRIATION.

OPERATIONS AND MAINTENANCE FUNDS

THE CORPS OF ENGINEERS HAS REQUESTED, AND TRA SUPPORTS APPROPRIATIONS FOR FY 1996 OPERATIONS AND MAINTENANCE FUNDS FOR FEDERAL WATER PROJECTS WITHIN OUR POLITICAL SUBDIVISION. THESE PROJECTS INCLUDE BARDWELL LAKE, NAVARRO MILLS LAKE, JOE POOL LAKE, AND WALLISVILLE SALTWATER PROJECT.

CONCLUSION

THE TRINITY RIVER AUTHORITY OF TEXAS THANKS THIS COMMITTEE FOR THE OPPORTUNITY TO TESTIFY AND FOR IMPROVEMENTS THAT THE FEDERAL GOVERNMENT HAS FUNDED WITHIN OUR WATERSHED OVER THE YEARS. FEDERAL APPROPRIATIONS FOR WATER PROJECTS IN THE TRINITY RIVER BASIN REMAIN ONE OF THE BEST INVESTMENTS EVER MADE.

THANK YOU.

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE

MY NAME IS LARRY DUNCAN AND I AM COUNCILMAN FOR THE CITY OF DALLAS, TEXAS. LET ME EXPRESS MY APPRECIATION, AS WELL AS THAT OF THE DALLAS CITY COUNCIL, FOR YOUR CONTINUED SUPPORT FOR THE FLOOD CONTROL PROJECTS AFFECTING THE CITIZENS OF DALLAS AND ITS NEIGHBORS, AS WELL AS FOR THE RAY ROBERTS LAKE PROJECT.

I REQUEST YOUR SUPPORT OF THE FISCAL YEAR 1996 BUDGET REQUESTED BY THE CORPS OF ENGINEERS FOR CONTINUED FUNDING OF THE UPPER TRINITY FEASIBILITY STUDY, THE DALLAS FLOODWAY EXTENSION AND THE LAKE RAY ROBERTS GREENBELT. THE REQUESTED \$304,000 FOR THE UPPER TRINITY FEASIBILITY STUDY, THE REQUESTED \$500,000 FOR THE DALLAS FLOODWAY EXTENSION PROJECTS AND THE REQUESTED \$3,500,000 FOR THE LAKE RAY ROBERTS GREENBELT ARE VERY IMPORTANT AND HAVE GREAT VALUE TO THE CITY OF DALLAS. ON BEHALF OF THE CITIZENS OF DALLAS, I WOULD LIKE TO URGE YOUR CAREFUL CONSIDERATION AND APPROVAL OF THESE REQUESTS. FUNDING OF THIS WORK PROVIDES FOR FLOOD PROTECTION, WATER SUPPLY AND RECREATION FOR CURRENT AS WELL AS FUTURE CITIZENS OF DALLAS.

I AM ALSO REQUESTING YOUR SUPPORT OF LEGISLATION THIS SESSION WHICH WILL CREDIT THE CITY OF DALLAS FOR FUNDS SPENT ON CONSTRUCTION OF FLOOD CONTROL PROJECTS THAT ARE PART OF THE 1965 AUTHORIZED FEDERAL FLOOD CONTROL PROJECT FOR EXTENDING THE DALLAS FLOODWAY. THE CITY OF DALLAS IS SEEKING THE NECESSARY AUTHORIZATION AS PART OF THE FLOOD CONTROL AUTHORIZATION BILL. ABSENT SUCH A BILL, THE CITY REQUESTS THIS BE INCLUDED IN THE BILL WHICH THIS SUBCOMMITTEE WILL REPORT. ATTACHED IS PROPOSED LANGUAGE.

A SERIES OF FOUR FLOODS OCCURRED IN THE PERIOD FROM 1989 TO 1992, ALONG THE UPPER TRINITY RIVER. DURING THESE FLOODS, EXTENSIVE DAMAGE RESULTED IN THE ROCHESTER PARK AREA, A RESIDENTIAL AREA IN SOUTHEAST DALLAS, AND TO THE CITY'S CENTRAL WASTEWATER TREATMENT PLANT. DUE TO IMMEDIATE NEEDS TO PROVIDE FLOOD PROTECTION FOR THE AREAS FLOODED, THE CITY OF DALLAS AUTHORIZED THE CONSTRUCTION OF A LEVEE SYSTEM FOR THE ROCHESTER PARK AREA AND FOR THE CENTRAL WASTEWATER TREATMENT PLANT. BOTH OF THESE LEVEES ARE BASIC ELEMENTS OF THE 1965 AUTHORIZED FEDERAL FLOOD CONTROL PROJECTS, IN WHICH FEDERAL FUNDS WOULD HAVE PAID FOR A SIGNIFICANT SHARE (MORE THAN 50%) OF THE CONSTRUCTION, IF THE PROJECT HAD BEEN FUNDED, OR IF THE CITY HAD ELECTED TO WAIT FOR THE COMPLETION OF THE DALLAS FLOODWAY EXTENSION STUDY. SPECIAL LEGISLATION IS NOW NECESSARY FOR THE CITY TO RECEIVE CREDIT FOR THE COST INCURRED IN THE CONSTRUCTION OF THESE TWO LEVEES.

ADDITIONALLY, WE ARE CONCERNED ABOUT PROPOSALS TO LIMIT THE CORPS LOCAL FLOOD CONTROL RESPONSIBILITY AND INVOLVEMENT. ACCORDING TO REPORTS, THE CORPS OF ENGINEERS WOULD FOCUS ON "REGIONAL" OR INTERSTATE FLOODING ISSUES AND WOULD SEVERELY CURTAIL OR CEASE ITS INVOLVEMENT IN FLOOD CONTROL PROJECTS LIKE THE DALLAS FLOODWAY EXTENSION. WE BELIEVE THAT THIS MOVE IS PREMATURE, AND SHOULD BE CAREFULLY STUDIED. THE GREAT WORK THE CORPS OF ENGINEERS PERFORMS ASSOCIATED WITH FLOOD CONTROL ISSUES IS VITAL TO THE DALLAS AREA.

THANK YOU FOR PROVIDING THIS OPPORTUNITY TO TESTIFY BEFORE THE SUBCOMMITTEE. I URGE YOUR CAREFUL CONSIDERATION AND APPROVAL OF FULL FUNDING OF THE ADMINISTRATION'S BUDGET REQUEST FOR THESE NECESSARY PROJECTS, AS WELL AS YOUR SUPPORT OF LEGISLATION THAT WOULD PROVIDE FOR THE CITY OF DALLAS TO RECEIVE CREDIT FOR THE COST INCURRED IN THE

CONSTRUCTION OF THE TWO LEVELS. YOUR SUPPORT IS NEEDED AND IS GREATLY APPRECIATED.

Mr. Chairman and Members of the Committee: I am Gary Skaggs, Chairman of the Trinity River Steening Committee at the North Central Texas Council of Governments. On behalf of the 9 cities, 3 counties, and 2 special districts participating in the Upper Trinity River Feasibility Study, the nation's largest cost-shared interjurisdictional study, I thank you for the opportunity to address the Committee during your deliberations on the FY96 federal appropriations. We are present before the Committee to express our support of the Administration's budget request of \$304,000 for the U.S. Army Corps of Engineers' (USACE) Upper Trinity River Feasibility Study in the FY96 federal appropriations bill. The Trinity River is the common thread connecting over 4 million residents of the nation's largest inland metropolitan area and it remains as the single most important resource to the area. Because of its significance, I will highlight the progress of the Feasibility Study and outline the remaining efforts and needs associated with this important regional program.

(1) The Upper Trinity River Feasibility Study has projected that over 22,000 homes would be flooded and 141 million square feet of commercial and industrial floor space that would be damaged with untold loss of life, and paints a graphic picture of the potential catastrophic losses incurred by flooding in the Dallas-Fort Worth Metroplex. The detailed flood analyses for the Standard Project Flood (SPF) serve to validate previous predictions of flooding magnitudes in the Upper Trinity River Basin. The Feasibility Study has developed many sophisticated computer modeling tools based on new detailed topographical and topological mapping that now provide unique capabilities in analyzing the floodplain. In addition to these, our cooperative effort has resulted in the implementation of a uniform set of floodplain development criteria by the local governments along the Trinity River in the Metroplex. This uniform criteria, known as the Corridor Development Certificate (CDC) Process, is designed to stabilize the existing level of flood risk of the Trinity River. Flood risk stabilization is enhanced through establishing this floodplain development criteria which includes no loss of valley storage in the 100-year floodplain, a maximum allowable valley storage loss in the Standard Project floodplain of five percent, maximum allowable velocities, no allowable loss in conveyance, requirements for erosion and sediment controls, and a peer pressure system of regional review and comment. Given the magnitude of potential flood damages and the significant progress already being made toward solutions, a positive conclusion to this study is nearly at hand.

(2) The 9 cities, 3 counties, and 2 special districts participating in this major regional effort are doing their part. Together with the State of Texas, through the Texas Water Development Board, they have contributed \$4 million and a lot of blood, sweat and tears into this Study as it progresses forward to a logical and expected conclusion. The Upper Trinity River Feasibility Study is an outstanding example of a cooperative governmental partnership that has generated many positive results. This cooperative, interjurisdictional effort includes significant state and local government involvement and financial contributions of \$4 million. The participating local governments have continually demonstrated their support by contributing to the success of the Feasibility Study with financial commitments and cooperative efforts. We are very appreciative of the State of Texas through the Texas Water Development Board for their recognition of the importance of regional planning and floodplain management, reflected by their participation and substantive financial contribution to the Feasibility Study. Collectively, we are committed to insuring that our efforts generate a positive return on those investments and meet our objectives.

Since the initiation of this study in 1990, we have produced many important products and implemented significant floodplain management policies resulting in improved floodplain management practices. The execution of this Feasibility Study has been an important component of NCTCOG's COMMON VISION program. The COMMON VISION Program's objective for the Trinity River Corridor is to achieve a Safe, Clean, Natural, Enjoyable and Diverse river corridor. These objectives are consistent with the Feasibility Study's authorization that directed the effort to find solutions that address flood damage reduction, water quality, environmental enhancement and recreation. Over the last four and a half years, detailed floodplain mapping, new computer flood damage assessment models, the Corridor Development Certificate (CDC) process, and the preliminary analysis of diverse alternative measures have been developed and produced.

(3) Through aggressive public involvement efforts resulting in the receipt of many recommendations from the public and their local governments, we have amassed a set of nearly 90 alternative measures addressing the Congressional mandates - structural and non-structural flood damage reduction, water quality, environmental enhancement, recreation, and other allied purposes including transportation. During the last three years, we have conducted a series of public meetings and workshops to keep the region apprised of the study's progress and to solicit ideas regarding possible alternative measures to consider in the study. These efforts have led to the production of *The Upper Trinity River Information Report - A Cost - Benefit Analysis* which was recently released to the public. This document presents the findings of the analyses of nearly ninety alternative

measures so that local project sponsors can be identified. The alternative measures identified include comprehensive flood warning improvements, traditional structural flood control projects such as channels, levees, and detention basins, innovative non-structural projects such as floodplain relocation and floodproofing, habitat and water quality-related wet detention basins, environmental restoration projects such as wetland creation and riparian habitat restoration, and numerous active and passive park and recreation projects including a regional greenway and trail system. As local project sponsors are identified, single or multiple purpose project implementation plans will be developed and evaluated in great detail to determine final feasibility. Additional public involvement activities are being initiated to facilitate the identification of project sponsors. Local sponsor commitments for approved project implementation plans are expected to be received early this summer.

The Study's Executive Committee has already approved two project implementation plans: the Dalhoma Trail and the FEMA Regulatory Modeling and Mapping project. The Dalhoma Trail project is intended to connect the City of Dallas with the Oklahoma border with over an approximately 120 mile long multi-use recreation trail and represents a major component of the regional greenway and trail system. The FEMA project is intended to produce a comprehensive regulatory model of the Trinity River to replace the current Federal Emergency Management Agency's (FEMA) floodplain models in use. The completion of this model will provide the region and FEMA with a comprehensive floodplain model for use in floodplain management issues such as the previously mentioned CDC Process.

(4) Ironically, just as we've developed a set of alternatives outlining a range of actions that the local governments are considering for implementation and thereby demonstrating their commitment as stewards of the river, our federal partner may not be able to live up to their end of the bargain. The USACE plays an important role in local floodplain management. In fact, without the USACE's long-standing role and involvement in floodplain issues, the National Flood Insurance Program (NFIP) would have been very ineffective. At this time, there does not exist a coherent and comprehensive national policy that satisfies the original objective of the NFIP. The USACE's ability to provide technical services helps the local governments solve the complex interjurisdictional floodplain problems that exist nationally. A reduction in the USACE's active role in floodplain management will hurt current efforts in mitigating flood damages across the country. The continued USACE participation in state, regional and local floodplain management issues is in the best national interest.

I encourage the Committee to carefully assess current governmental reorganization and budget reduction efforts associated with important federal programs and services like cost-shared Feasibility Studies. The Administration is currently reviewing the role and function of the USACE in providing technical assistance on issues affecting local and regional waterways. If the Administration's FY96 budget is not modified, the USACE would not be able to continue to address important regional and local flood damage reduction issues, one of the major functions that historically defined the USACE's national role. The Steering Committee urges the careful consideration of such discretionary budget reduction actions which may have major unforeseen negative impacts.

Given the positive results generated by this important regional effort, the Trinity River Corridor Steering Committee recommends the continuation of federal funds for the Feasibility Study. Significant governmental investment has been made into this study which should be allowed to continue through the project implementation phase. We urge Congress to continue to fund cost-shared projects within major urban areas for implementation. As cosponsors of the nation's largest interjurisdictional effort toward multi-objective floodplain management, we are pleased to be able to report our cooperative successes as we near the completion of study. With this record and continued federal participation, we can look forward with optimism toward achieving a "COMMON VISION" for the Trinity River.

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

MY NAME IS JIM OLIVER AND I AM THE GENERAL MANAGER OF TARRANT COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT NUMBER ONE. OUR DISTRICT OPERATES THE FOUR MAJOR WATER SUPPLY RESERVOIRS THAT SUPPLY THE CITIES OF FORT WORTH, ARLINGTON AND MOST OF TARRANT COUNTY ALONG WITH PORTIONS OF NINE OUTLYING COUNTIES. WE ALSO OPERATE AND MAINTAIN THE FORT WORTH FLOODWAY, ALONG THE WEST AND CLEAR FORKS OF THE TRINITY RIVER THROUGH FORT WORTH.

WE COME HERE TODAY TO TESTIFY IN SUPPORT OF CONTINUED APPROPRIATIONS TO THE FORT WORTH DISTRICT OF THE CORPS OF ENGINEERS. THE FORT WORTH DISTRICT IS CURRENTLY IN YEAR FIVE OF A SIX YEAR, EIGHT MILLION DOLLAR FEASIBILITY STUDY. THIS STUDY IS EVALUATING SEVERAL STRUCTURAL FLOOD CONTROL ALTERNATIVES WHICH HAVE BEEN PREVIOUSLY IDENTIFIED AS NECESSARY TO MAINTAIN THE ORIGINAL DESIGNED LEVEL OF FLOOD PROTECTION PROVIDED BY THE FORT WORTH FLOODWAY.

THIS STUDY HAS REACHED A MOST CRITICAL POINT IN ITS PROCESS. LOCAL INTERESTS ARE CURRENTLY EVALUATING THE FLOOD CONTROL MEASURES WHICH HAVE BEEN PRELIMINARILY IDENTIFIED AS ECONOMICALLY FEASIBLE. THESE POTENTIAL LOCAL SPONSORS INCLUDE THE TARRANT COUNTY WATER DISTRICT. AS EARLY AS THIS SUMMER, OUR BOARD OF DIRECTORS WILL CONSIDER PARTICIPATION IN ADDITIONAL COST SHARING FOR THE FINAL PHASE OF THIS STUDY. THIS WOULD BE A SIGNIFICANT FINANCIAL COMMITMENT BY OUR ORGANIZATION AND COULD LEAD TO US ULTIMATELY SERVING AS THE LOCAL SPONSOR FOR THE IMPLEMENTATION OF THE FEASIBLE FLOOD CONTROL IMPROVEMENTS WITHIN THE FORT WORTH FLOODWAY.

OUR COMMUNITY TAKES CONSIDERABLE PRIDE IN THE INVESTMENT THE FEDERAL GOVERNMENT HAS MADE IN THE DEVELOPMENT OF THE FORT WORTH FLOODWAY. THE LEADERSHIP IN OUR COMMUNITY ALSO RECOGNIZES THE NEED TO MAINTAIN THESE IMPORTANT FLOOD CONTROL FACILITIES.

CONTINUED DEVELOPMENT IN THE REGION HAS MADE THIS EXTENSIVE EFFORT TO REVIEW THE EXISTING FLOODWAY NECESSARY. THE CORPS OF ENGINEERS HAVE DETERMINED THAT CHANGES IN HYDRAULIC CONDITIONS AS WELL AS HYDROLOGIC, RISK AND FREQUENCY ASSUMPTIONS HAVE INDICATED THAT THE EXISTING FLOODWAY NO LONGER PROVIDES THE DESIGNED LEVEL OF FLOOD PROTECTION. THIS COMPREHENSIVE STUDY INDICATES PRELIMINARILY THAT ADDITIONAL IMPROVEMENTS ARE NECESSARY AND ECONOMICALLY FEASIBLE.

IT IS VERY CRITICAL THAT COMPLETION OF THE UPPER TRINITY RIVER FEASIBILITY STUDY CONTINUE TO BE A PRIORITY FUNDING ISSUE FOR FISCAL YEAR 1996. WE APPRECIATE THE CONSIDERATION THAT THIS SUBCOMMITTEE HAS GIVEN THIS

PROJECT IN THE PAST AND ANTICIPATE THE RESULTS OF THIS STUDY WILL IMPACT FLOOD CONTROL PLANNING IN ONE OF OUR NATIONS MORE POPULATED AREAS WELL INTO THE NEXT CENTURY. THANK YOU.

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

MY NAME IS FREDERICK A. PERRENOT AND I SERVE AS GENERAL MANAGER OF HOUSTON PUBLIC UTILITIES. THE HOUSTON/GALVESTON METROPOLITAN AREA IS A VIBRANT ECONOMIC AND INDUSTRIAL CENTER AND HOME TO OVER THREE MILLION PEOPLE. THE PORT OF HOUSTON IS THE NATION'S NUMBER ONE PORT FOR CARGO SHIPPED TO FOREIGN PORTS, THE COUNTRY'S NUMBER TWO PORT FOR TOTAL TONNAGE SHIPPED, AND THUS THE GATEWAY FOR FOREIGN COMMERCE. SIMILARLY, NASA AND THE JOHNSON SPACE CENTER ARE THE COUNTRY'S "GATEWAY TO SPACE EXPLORATION". HOUSTON IS ALSO THE ENERGY CAPITAL OF THE UNITED STATES. MUCH OF THE NATION'S REFINING CAPACITY OF PETROLEUM IS CONCENTRATED IN THE HOUSTON AREA AND PROVIDES MORE THAN 25% OF U.S. JOBS RELATED TO CRUDE PETROLEUM AND NATURAL GAS EXTRACTION.

MR. CHAIRMAN, JUST AS ENERGY IS THE LIFEBLOOD OF COMMERCE, FRESH WATER SUPPLY IS THE LIFEBLOOD THAT ALLOWS ECONOMIC AND INDUSTRIAL GROWTH.

THE CITY OF HOUSTON, AS THE DEVELOPER OF THREE MAJOR RESERVOIRS, A RAW SURFACE WATER CONVEYANCE/DISTRIBUTION SYSTEM AND A WATER TREATMENT/DISTRIBUTION SYSTEM, HAS BECOME THE REGIONAL SUPPLIER OF FRESH WATER IN THE HOUSTON-GALVESTON AREA. THIS SURFACE WATER IS IMPORTANT TO ELIMINATE THE DEVASTATING PROBLEM OF SUBSIDENCE WHICH HAS REACHED LEVELS OF MORE THAN TEN FEET IN SOME AREAS. COASTAL SUBSIDENCE DUE TO GROUNDWATER WITHDRAWAL HAS

BEEN VIRTUALLY HALTED AND GROUNDWATER LEVELS HAVE RECOVERED SIGNIFICANTLY WHERE CONVERSION TO RECOMMENDED LEVELS OF GROUNDWATER PUMPAGE HAS OCCURRED. PROVIDING ADDITIONAL SURFACE WATER TO REPLACE GROUNDWATER IN UNCONVERTED AREAS MUST CONTINUE TO CONSOLIDATE THE ABATEMENT OF SUBSIDENCE CURRENTLY ACHIEVED. THIS HAS NOT BEEN AN INEXPENSIVE PROCESS WITH THE CITY RATEPAYERS AND OUTSIDE CUSTOMERS WHO HAVE FUNDED THE \$1.8 BILLION CAPITAL AND INTEREST INVESTMENT THAT HAS OCCURRED TO DATE.

WE ARE PROCEEDING WITH MAJOR STUDIES TO EVALUATE AND ENHANCE PROGRAMS IN THE AREAS OF WATER CONSERVATION, RESERVOIR SYSTEMS OPERATION, WASTEWATER REUSE, AND OTHER METHODS TO EFFECTIVELY AND EFFICIENTLY MANAGE EXISTING WATER SUPPLIES. EVEN WITH THESE PROGRAMS, IT IS PROJECTED THAT WATER DEMANDS WILL EXCEED THE EXISTING AVAILABLE SUPPLIES BY ABOUT THE YEAR 2010.

THE ONE REMAINING PROJECT THAT HAS BEEN AN INTEGRAL PART OF WATER SUPPLY PLANNING FOR THE HOUSTON AREA IS THE WALLISVILLE PROJECT LOCATED ON THE TRINITY RIVER TO THE EAST OF HOUSTON. WITH THIS PROJECT IN PLACE, AN ADEQUATE SUPPLY OF WATER WILL BE AVAILABLE TO THE AREA UNTIL ABOUT 2030.

THE CITY ENTERED INTO A CONTRACT WITH THE CORPS OF ENGINEERS IN 1967 FOR THE WALLISVILLE PROJECT. CONSTRUCTION HAS STARTED, BEEN HALTED TO RESOLVE ENVIRONMENTAL ISSUES, AND AFTER RESOLUTION OF THE ENVIRONMENTAL ISSUES, WAS RESUMED IN 1991 WITH FUNDS APPROPRIATED BY CONGRESS. TO DATE, \$41 MILLION HAS BEEN APPROPRIATED WITH \$38 MILLION AWARDED IN CONTRACTS. THE FINAL DESIGN FOR THE MAJOR SALTWATER BARRIER FACILITIES IS UNDERWAY AND

WILL BE COMPLETED SOON. IT IS CRITICAL THAT THIS PROJECT PROCEED TO PROTECT THIS INVESTMENT AND TO REALIZE THE BENEFIT OF CONSERVING UP TO 640 MILLION GALLONS A DAY OF WATER THAT WILL BE REQUIRED PERIODICALLY TO PREVENT SALTWATER INTRUSION INTO THE TRINITY RIVER DURING THE SUMMER MONTHS.

THE CITY IS COMMITTED TO FULFILLING ITS OBLIGATIONS UNDER THE TERMS OF THE CONTRACT FOR THE WALLISVILLE PROJECT AND SUPPORTS THE CORPS' EXPRESSED CAPABILITY REQUEST OF \$5 MILLION FOR FISCAL YEAR 1996. THIS WOULD ALLOW THIS VITAL PROJECT TO PROCEED WITH ONLY A LIMITED DELAY IN THE SCHEDULE FOR COMPLETION.

WE WANT TO THANK THIS COMMITTEE FOR ITS LONG-TERM SUPPORT FOR THIS PROJECT AND ASSURE YOU THAT THIS PROJECT REMAINS A HIGH PRIORITY IN OUR CONTINUING EFFORT TO MEET OUR RESPONSIBILITIES AS THE REGIONAL SURFACE WATER SUPPLIER.

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

MY NAME IS ERNIE ZIESCHANG AND I AM TESTIFYING TODAY AS PRESIDENT OF THE PORT OF LIBERTY COMMISSION.

MAINTENANCE DREDGING OF THE TRINITY RIVER FROM OUR PORT AT RIVER MILE 45 TO THE OPEN WATER OF TRINITY BAY AND THE HOUSTON SHIP CHANNEL IS ONE OF THE HIGHEST PRIORITIES OF OUR COMMISSION. THIS COMMITTEE HAS SUPPORTED OUR REQUESTS FOR MAINTENANCE FUNDING IN YEARS PAST, AND IN SO DOING HAS PLAYED AN EXTREMELY POSITIVE ROLE IN SUSTAINING THE ECONOMIC VITALITY OF THE LOWER TRINITY RIVER VALLEY.

THROUGH THE PRESIDENT'S BUDGET THE GALVESTON DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS HAS EXPRESSED THE CAPABILITY TO EXPEND \$1,270,000 FOR OPERATIONS AND MAINTENANCE ACTIVITY ALONG

THE LOWER TRINITY RIVER AND WE AGAIN REQUEST YOUR SUPPORT FOR THIS APPROPRIATION. THE CORPS OF ENGINEERS HAS DEVELOPED AN INNOVATIVE METHOD OF DISPOSING OF DREDGE SPOIL MATERIAL IN DEEP HOLES IN THE RIVER RATHER THAN THE TRADITIONAL METHOD OF DISPOSAL ON THE RIVER BANK. WE LOOK FORWARD TO WORKING WITH THE CORPS TO DETERMINE IF THIS IS A FEASIBLE ALTERNATIVE FOR THE LOWER TRINITY RIVER.

THE WALLISVILLE SALTWATER BARRIER REMAINS A HIGH PRIORITY OF THE PORT OF LIBERTY COMMISSION. THE CORPS OF ENGINEERS HAS EXPRESSED A CAPABILITY TO EXPEND \$5,000,000 DURING THE COMING YEAR FOR CONTINUED CONSTRUCTION ON THIS MOST IMPORTANT SALINITY CONTROL PROJECT. WITH CONTINUED FUNDING WALLISVILLE WILL BE COMPLETED IN LATE 1997 AND ONLY THEN WILL THE LOWER TRINITY CITIZENS BE ABLE TO REALIZE ITS MANY BENEFITS. THANK YOU AGAIN FOR YOUR CONSIDERATION AND WE LOOK FORWARD TO YOUR CONTINUING SUPPORT FOR THESE MOST IMPORTANT FEDERAL WATER PROJECTS.

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

I AM BOB CASTLEBERRY, MAYOR OF THE CITY OF DENTON, TEXAS. THANK YOU FOR THE OPPORTUNITY TO TESTIFY ON BEHALF OF THE CITY REGARDING THE IMPORTANT ISSUES FACING THIS COMMITTEE.

LET ME BEGIN BY ENCOURAGING YOUR CONTINUED SUPPORT FOR THE RAY ROBERTS LAKE PROJECT. THE RAY ROBERTS LAKE PROJECT IS PROVIDING APPROXIMATELY 76 MILLION GALLONS OF WATER TO THE NORTH TEXAS REGION. AS YOU KNOW, FEDERAL LAW REQUIRES DEVELOPMENT OF RECREATIONAL FACILITIES AT FEDERAL PROJECTS. IN 1986, THE WATER RESOURCES DEVELOPMENT ACT WAS PASSED, REVISING THE AUTHORIZATION

FOR LAKE RAY ROBERTS TO INCLUDE THE DEVELOPMENT OF A GREENBELT CORRIDOR IN LIEU OF ADDITIONAL RECREATIONAL DEVELOPMENT AT LEWISVILLE LAKE. THE PLAN FOR THE GREENBELT INCLUDES DEVELOPMENT OF THE PROPERTY FOR PUBLIC ACCESS AND DIVERSE RECREATIONAL USES, FROM HORSEBACK RIDING TO CANOEING, BENEFITTING EVERYONE IN THE NORTH CENTRAL TEXAS REGION. BESIDES ENSURING THAT THE PRIMITIVE CHARACTER OF THE RIVER CORRIDOR REMAINS INTACT, THE GREENBELT ALSO OFFERS A "BUFFER" BETWEEN LAND ALONG THE RIVER AND FUTURE DEVELOPMENT.

THE CORPS OF ENGINEERS HAS REQUESTED \$3,500,000 IN THEIR BUDGET FOR THE CONSTRUCTION AND COMPLETION OF THE LAKE RAY ROBERTS GREENBELT AND OTHER EXPENSES RELATED TO DEVELOPMENT OF THE LAKE RAY ROBERTS PROJECT. ON BEHALF OF THE CITY OF DENTON, I ENCOURAGE THIS COMMITTEE TO GRANT THE CORPS' REQUEST.

I WOULD ALSO LIKE TO TAKE THIS OPPORTUNITY TO EXPRESS THE CITY OF DENTON'S CONCERNS REGARDING PROPOSED LEGISLATION TO LIMIT THE CORPS' RESPONSIBILITY FOR LOCAL FLOOD CONTROL. I BELIEVE THE PROPOSAL WOULD LIMIT THE CORPS' OVERSIGHT AUTHORITY TO INTERSTATE FLOODING ISSUES, ELIMINATING ITS CURRENT ROLE IN LOCAL FLOOD CONTROL PROJECTS, SUCH AS THOSE INVOLVING THE UPPER TRINITY RIVER. THE CORPS OF ENGINEERS HAS HISTORICALLY SERVED OUR REGION WELL IN FLOODING ISSUES, AND THE CITY OF DENTON WILL OPPOSE ANY LEGISLATION AT THIS TIME WHICH MAY HASTILY CHANGE THE CORPS' ROLE.

THANK YOU FOR YOUR TIME AND THE OPPORTUNITY TO TESTIFY BEFORE THIS COMMITTEE. IF I CAN OFFER ADDITIONAL INFORMATION, PLEASE CONTACT ME AND I WILL BE HAPPY TO DO SO.

PREPARED STATEMENT OF H.T. KORNEGAY, EXECUTIVE DIRECTOR, THE
PORT OF HOUSTON AUTHORITY

On behalf of the Port Authority and the 110,000 people of Texas whose jobs depend on the port, we would like to thank Chairman Domenici, Senator Johnston and members of the subcommittee for once again allowing the Port to submit written testimony in support of several important navigation projects included in the U.S. Army Corps of Engineers Civil Works Budget for Fiscal Year 1996.

Each year for five years, the Port has presented testimony to this subcommittee expressing its appreciation for providing the funds necessary for the Port of Houston to remain fully functioning through dredge maintenance projects; and, to urge you to look with us toward the future by providing funding for preconstruction and design to widen and deepen the ship channel.

We are pleased that each year the subcommittee has provided the significant support the Port has needed. We certainly appreciate all of your efforts.

Today, we express our full support of the FY 96 Corps' budget request in the following amounts:

Houston Ship Channel (O&M)	\$5,800,000
Houston-Galveston Channel (P/E&D)	\$1,100,000

Each of the amounts specified is important to ensure the continuous flow of commerce through the Port of Houston.

We have many things to be proud of at the Port of Houston and would like to identify just a few.

PORT OF HOUSTON -- THE NATION'S PORT

First, we truly regard Houston as the Nation's port. It is no exaggeration to say that the Houston Ship Channel is one of the most important economic lifelines between our nation and the world.

Geographically we are most strategically located at the Nation's midpoint -- handling cargo to and from the entire heartland of America. We draw cargo from the farthest reaches of the U.S., in fact from every state in the Nation. We ship these U.S. cargos around the world to people in nearly every country. Likewise, shipments from elsewhere in the world pass through our channel and across our docks to destinations all across the Nation. This has made us the #1 U.S. port in foreign tonnage for three years in a row and the second busiest U.S. port in total tonnage for 1994. Last year cargo handled through the Port of Houston totaled 96.5 million tons.

The Houston Ship Channel is also home to the largest petrochemical complex in the U.S., second only in the world to the Port of Rotterdam.

Houston's favorable location provides easy access to the entire world business community through key ocean, land and air routes. Nearly 100 shipping lines connect Houston with more than 250 world ports. Four major railroads provide cargo distribution throughout the United States and more than 160 trucking lines service the rest of the nation via the Texas and interstate highway system.

We are proud to report that in 1994 alone a total of 5,448 ships flying the flags of over 81 different nations called on the Port of Houston. In addition, almost 50,000 barges navigated the waterway.

An estimated 29,000 people work in jobs that are directly related to Port of Houston activity and another 81,000 jobs are indirectly related to the port's activity. There is no doubt that the port has become a vital force in the commerce of the United States and the world and in the lives of those Americans who depend on its success for their livelihood.

PORT OF HOUSTON -- PROTECTING OUR NATIONAL SECURITY

During the Desert Storm/Desert Shield operation the U.S. government deployed 106 vessels carrying 458,342 tons of government cargo and military supplies from Barbours Cut Terminal at the Port of Houston. In fact, between August of 1990 and October of 1991 the Port of Houston was the second busiest port in the Nation in support of our troops.

We are proud that our strategic location enabled the Port of Houston to play such an important role in the defense of our Nation and the world.

PORT OF HOUSTON -- PROTECTING THE ENVIRONMENT

We are also proud of the fact that the Port of Houston Authority is helping to lead the way in a unique approach to addressing the environmental interests in the ship channel improvement project.

Years ago the Port of Houston Authority made an important commitment. In improving the Houston Ship Channel for navigation purposes, we promised that placement of the dredged material from this critical project would have a "net positive environmental effect" on the Galveston Bay system.

The Port has been working with 10 federal and state agencies since early 1990 as part of the Interagency Coordination Team -- the ICT. The ICT represents a broad range of environmental interests including: the EPA; the U.S. Fish and Wildlife Service; the Corps; the U.S. Natural Resources Conservation Service (formerly U.S. Soil Conservation Service); National Marine Fisheries Service; and, others.

We are pleased to report that after years of working together on planning, design, and scientific verifications, this auspicious group of 10 diverse agencies has approved an exciting plan for the environmental enhancement of the bay using the dredged material from the ship channel improvement project itself and 50 years of maintenance.

This beneficial use plan provides for the creation of almost 4,500 acres of marsh, together with bird islands, boater destination islands and shoreline erosion protection. The plan does not sacrifice existing productive habitat -- instead, it emphasizes habitat construction in areas already affected by dredging operations, and, the plan ensures long-term monitoring, management and maintenance of these environmental benefits.

This is a plan that recognizes and treats dredged material as the resource it is, and that much needed improvements for commerce and navigation are compatible with the needs for environmental restoration and enhancement.

The Port's role includes active participation and direct financial support of this environmental initiative. The Port of Houston Authority has already spent over \$9 million to ensure that these environmental benefits will be achieved.

We are proud to be leading the way in this unique and precedent-setting approach to addressing the environmental interests of the Houston Ship Channel project. Our Executive Director, Tom Kornegay, has put it best when he said:

"It's often mistakenly assumed that port development and environmental concerns are mutually exclusive. We [at the Port of Houston Authority] want to correct that perception. These projects will show what can be accomplished when public agencies, community groups and individuals work together."

The Port Authority has taken the initiative to construct a 220-acre demonstration marsh using dredged maintenance material to verify feasibility of marsh creation using conventional equipment and practices -- IT WORKED!

Through a contract between the Port of Houston Authority and the U.S. Natural Resources Conservation Service an Americorp team has begun planting 250,000 sprigs of vegetation. They will complete their work late spring. This demonstration project will enable the Port and its federal and state partners to identify cost effective techniques for the construction of large scale marshes that will mirror the environmental benefits of natural marshes. The demonstration marsh has cost the Port Authority \$4.5 million.

The Port Authority, in partnership with Houston Lighting and Power Company (HL&P), constructed a five acre oyster reef using golf-ball sized fly ash pellets at a cost of some \$600,000. This reef has been tremendously successful in propagating oysters and demonstrates the large-scale feasibility of using what had been considered a waste by-product of power generation (coal ash) as a cost-competitive alternative resource for oyster reef creation. The demonstration reef has given the Port a "hands-on" basis for establishing oyster reef mitigation costs associated with the widening and deepening project. It has also served to encourage the Port and HL&P to explore other cost-saving applications of this product for erosion protection of the marshes to be created as part of the ship channel improvement project.

We are proud of these environmentally conscientious efforts and believe the results will benefit the Galveston Bay and the community, as well as the Port Authority and channel users.

PORT OF HOUSTON -- LOOKING TOWARD THE FUTURE

While Houston is one of our Nation's busiest ports, we are also one of the narrowest deep draft channels. The channel was last improved in 1966 when it was deepened to forty feet and widened to four hundred feet.

As you can imagine, ships and shipping patterns have dramatically changed to meet the demands of world trade over the last thirty years. Likewise, for reasons of safety, environment, and economics everyone agrees that the Houston Ship Channel is long overdue to be improved.

The voters of Harris County have already committed significant local funding to support these improvements. In 1989, Harris County voters approved, by a two-to-one vote, a measure that will provide the local funding (\$130,000,000) to deepen the channel to forty-five feet and widen it to 530 feet.

This project has been studied for over 27 years and is finally nearing authorization. The \$1.1 million in funds requested by the Corps are essential to complete the studies and reports in order to obtain congressional authorization of the project in 1996. The Corps has assured us that these funds are sufficient to move the project forward in a timely manner and to meet the 1996 authorization timeframe.

CONCLUSION

We greatly appreciate your past support and urge the subcommittee to include funds in the FY 96 Corps appropriations to fully support the projects delineated above. This maintenance and particularly the preconstruction and design for the improvements to the ship channel represent important components in the Port of Houston's continued ability to move the commerce of the nation in a safe, efficient, and economical manner. We thank you for your consideration of these requests.

PREPARED STATEMENT OF DOUG W. SVENDSON, JR., EXECUTIVE DIRECTOR,
GULF INTRACOASTAL CANAL ASSOCIATION

Good morning Mr. Chairman and members of the subcommittee. I am Doug W. Svendsen, Jr., Executive Director of the Gulf Intracoastal Canal Association. Ours is the oldest of the regional Waterway Associations, having been established in Victoria, Texas in 1905. We proudly celebrate 90 years of service to a broad spectrum of shippers, manufacturers, commodity producers, the mining industry, and other waterway interests.

GICA's membership includes both shallow draft and deep draft ports, port commissions and navigation districts, petroleum refineries, chemical manufacturers, shipyards, marine fabricators, fuel terminal facilities, and individuals whose businesses are waterway related. We have 170 members in the five states of Texas, Louisiana, Mississippi, Alabama, & Florida served by the Gulf Intracoastal Waterway. In addition, the GIWW is the link that binds the North-South rivers to the canal, the coastal ports, and ultimately the heartland of America. The Mississippi River intersects the GIWW at New Orleans, one of our busiest ports, and the Tenn-Tom intersects the GIWW at Mobile.

Mr. Chairman, the Waterway has been completed since 1949, and the task that lies ahead is to keep it properly maintained, to repair and improve the locks that presently exist, and to keep it as free of navigation obstructions as possible. This refers to necessary maintenance concerning shoaling, dredging, proper buoys & channel markers, and the elimination of bridge obstructions. All of these involve safety, which has consequences for the marine environment as well.

Mr. Chairman, next week we have a major ground breaking celebration along the Texas Gulf Coast in connection with The Corps of Engineers Sargent Beach project. This is a good example of the on going necessity to keep the waterway in top condition to preserve its efficiency & safety.

This committee, as well as the Senate, deserves our appreciation for its actions over the last four years in providing study, design, and new construction funding for this crucial navigation project. Once completed, the project will literally prevent the Gulf of Mexico from destroying the Intracoastal Waterway. We also extend a special thank you to Representative Jim Chapman for his continuous efforts to make Sargent Beach a reality. We believe the \$20 million budget request in the President's FY 1996 budget reflects the Corps' full capability for 1996 and we request funding approval by the Committee at this level.

GICA supports the Administration's higher maintenance request for 1996, and urges the committee to approve sufficient operations and maintenance funding to keep this important Federal asset in tip top condition. This will enhance and continue the GIWW's vitality as a safe and efficient waterway.

In recent testimony before this committee John H. Zirschky, Acting Assistant Secretary of the Army, (Civil Works) pointed out that "every dollar spent on operations and maintenance on the existing inland waterway system results in savings of about \$11.55 in the cost of transporting goods."

The Gulf Coast of the United States is an extremely busy industrial and manufacturing area and is quite popular as well as a recreation and fishing area. Those who use the Gulf Intracoastal Waterway as the efficient, low cost artery of commerce it was intended to be, are constantly mindful of the unique hazards to navigation that can develop on a busy waterway. The industry, which is to say a number of individual barge companies whose tow boat captains are familiar with every one of the 1150 miles of the GIWW, have compiled a "blue book" listing particular navigation concerns from Brownsville, Texas to St. Marks, Florida.

Those companies, along with the Gulf Intracoastal Canal Association, the Texas Waterways Operators Association and American Waterways Operators meet periodically with the Eighth Coast Guard District and the Corps of Engineers districts in Galveston, New Orleans, and Mobile to try to resolve these navigation problems. I have left several copies of this report with your staff for the committee's files, not necessarily for inclusion in this hearing record.

Much headway has been made in addressing these navigation problems since the report's last publication, dated October 1994. GICA wants this committee to know of the outstanding assistance and cooperation the industry is receiving from the Coast Guard, 8th District New Orleans, and from the Corps of Engineers, Galveston, New Orleans and Mobile. The partnering program instituted by the Corps' national office is working for the industry, and we wanted to make this known to you, Mr. Chairman.

We urge this committee to fund the section 216 studies in the President's budget. These studies along the GIWW include Corpus Christi Bay to Port Isabel, Texas, High Island to Brazos River, Texas and Port O'Connor to Corpus Christi Bay, Texas. These studies are important because they provide the Corps the capability to review completed projects. Over time, changed circumstances may require environmental study and solutions which were not apparent when the project was first completed. On a waterway as nationally significant as the GIWW, it is important that the Corps have this capability.

Similarly, we urge funding for the Aransas National Wildlife Refuge, Texas project to protect the winter home of our most well known endangered species, the whooping crane. There has been a significant, cooperative volunteer effort among private sector towing and shipping interests, governmental agencies and environmental groups to protect the shallow ponds which are critical components of the whooping crane's winter habitat.

GICA also supports funding at the Corp's full capability for the project to enlarge the Victoria Channel to make its dimensions compatible with those on the GIWW.

GICA supports continuing appropriations for the Industrial Canal Lock, Louisiana. This present lock is located at the junction of the Mississippi River and the Gulf Intracoastal Waterway. Future traffic growth and the importance of the lock to the regional & national economy justify its replacement. We concur with the Chairman of the Governor's Maritime Industry Task Force in Louisiana who testified here earlier this week.

GICA also supports continuing appropriations for the Intracoastal Waterway Locks, Louisiana study, which includes all the locks on the GIWW in Louisiana west of the Mississippi River. The study is evaluating which improvements will maximize efficiency of the GIWW and its connections with the Mississippi River while minimizing costs.

The Corps of Engineers also has under study flooding conditions in Louisiana under the title Morganza to the Gulf. Unfortunately, this study will not be funded beyond its current phase under new standards established in President Clinton's budget for FY 1996. If, as expected, funding is discontinued, future flooding could have severe consequences for navigation. The study area between Bayou Lafourche and Bayou Boeuf Lock includes not only the main route of the GIWW, but the alternate route as well. A long term solution to flooding on the alternate route was to have been one of the goals of this study.

A second Corp study in the area, Lower Atchafalaya Basin Re-evaluation, will continue under terms of the FY 1996 budget because more than 50% of the flood waters in the Mississippi and Atchafalaya Rivers originate outside Louisiana.

A third long term study involving both the State of Louisiana and the Federal Government, through the Corps of Engineers, is underway in the same general areas. It's focus is to prevent further coastal erosion and to find ways to transport enormous volumes of sediment laden fresh water into coastal and marsh areas which once were vibrant wetlands. Part of the transportation system for the freshwater is the Gulf Intracoastal Waterway.

Sediment that falls out in the Waterway before reaching its intended destination will have to be removed by the Corps' maintenance dredging program, adding large incremental costs to maintenance of the waterway, and affecting its B/C ratio. This concerns us because of the real possibility that next year, or the year after, B/C changes for navigation projects could be set at a fixed requirement, as was done for flood control projects in the Administration's 1996 budget.

We are also concerned about coordination of the competing needs, i.e. navigation, flood control, environmental, etc. on the Lower Atchafalaya project. Re-routing of additional volume of Atchafalaya River water through the Wax Lake outlet to the Gulf poses additional risks to navigation on the GIWW due to increased current flows where the two channels intersect. Additionally, navigation on the GIWW could be very adversely affected by the installation of up to four additional locks between Bayou Sale and Bayou Lafourche, for flood control purposes.

In light of the various alternatives that are still pending before the Corps and citizen participation groups representing navigation, the environment, flood control, land owners, ports, and others, we recommend that this committee, through its oversight responsibilities, or otherwise, make sure that the Corps' consider the important interests of all parties, simultaneously, as this study moves out of the reconnaissance and feasibility phases, into planning and construction. Navigation's interests cannot be placed on hold, to be dealt with later, while all the rest of the study's components (flood control, environmental, etc.) move forward.

In analyzing all competing needs simultaneously, it is vital that the burden placed on navigation, which will result from the additional locks or flood gates in the GIWW, as well as its potential re-routing, be carefully considered with navigation interests specifically in mind. If this is not done, the potential

exists for a veritable horror story in which the GIWW, a commercial navigation artery of national significance will be potentially subjected to the following navigation obstacles, all at the same time.

- (a) excessive currents at key crossings due to flood water diversion;
- (b) possibly 4 locks within a 75 mile reach of the waterway, resulting in unacceptable delays and congestion.
- (c) re-routing of the waterway in a time consuming maze of curves;
- (d) shoaling in the waterway resulting from using a navigation channel as a conduit for water & sediment for wetlands rehabilitation.

We want to emphasize that these problems have not yet materialized, but as these studies progress they could. They are real problems the navigation industry already confronts (i.e. shoaling, swift currents due to flooding or other causes) from Alabama & Florida to Texas. We don't need any more challenges.

Mr. Chairman, we wish to call to your attention the administration's proposal to phase out the Corps continuing authorities program. This program is for smaller projects, which must still receive favorable reports, but involve less money, and don't require separate authorizations.

Some authorities relate to flood control, some to dredging, and others to bridge embankment and channel work at publicly owned bridges. We would suggest for your consideration that these continuing authorities programs, all of which have spending caps, be retained to give the Corps maximum flexibility to perform necessary work quickly, and in some cases on an emergency basis.

Mr. Chairman, this concludes our testimony. We appreciate the opportunity to express our views publicly in committee, and will be happy to answer questions today, or to be submitted for the record.

PREPARED STATEMENT OF GRADY GAMMAGE, JR., PRESIDENT, THE CENTRAL ARIZONA WATER CONSERVATION DISTRICT

One year ago, we reported to this subcommittee that the Secretary of Interior had declared the first phase of the Central Arizona Project to be substantially complete and that the process of repayment to the federal government had begun--even while work on certain features was being completed.

To date, we have made payments to the United States on our CAP debt totalling approximately \$100 million.

In the past year, we have worked diligently with representatives of the Department of Interior and the Bureau of Reclamation to reach agreement on a number of issues which are of vital importance to the U.S. and Arizona in maximizing the benefits of CAP for both Arizonans and the broad community of interests which the U.S. represents. In February of this year, the U.S. and CAP negotiators reached agreement on the principles which will guide our efforts in the future. We are jointly engaged in drafting those principles into a document which will be signed by both parties. The key principles include:

First, the establishing of a firm ceiling on project repayment costs at just under \$2 billion. Equally significant, the allocation of project costs will be fixed based on "capacity allocation" from the ultimate amount of water designated to federal and non-federal uses. The stability of this arrangement allows us to reasonably forecast and predict our financial future.

Second, the District will assume responsibility for managing completion of remaining Project features, utilizing federal appropriations which will be subject to the repayment obligation. Cost overruns will be the responsibility of the District.

Third, we have now agreed that an additional 240,000 acre-feet of water will be reserved for federal uses bringing the total CAP water allocation for federal purposes to 687,000 acre-feet. From the tribal perspective, this block of water will settle long-standing Winter's Rights claims against the federal government. From the CAP's perspective, we are provided with another class of valued and important customers. It is our intent to request the formation of a panel composed of representatives from the CAP Indian communities who will consult with us concerning decisions which affect them. We look forward to an improved and more direct relationship between our Board and the CAP tribes.

In connection with this use of water by the federal government, the U.S. has agreed to pay its 48% share of the operation, maintenance and replacement (OM&R) costs that the 687,000 acre-feet represents until the year 2020. From that point forward until the end of the contract period in 2048, the U.S. will not pay OM&R costs for Indian domestic and irrigation use and, in fact, these costs will be the responsibility of the CAWCD. Recognizing and treating the federal government as a customer of the Project and identifying the share of the project which the U.S. will pay for provides us with predictability in designing our future.

Finally, our agreement resolves a set of financial issues. When a formal agreement is developed and signed to implement the terms of our settlement with the federal government, the CAWCD has agreed to make an upfront cash payment of \$30,000,000 to the United States. The U.S. will then ratify the target pricing policy for agricultural, municipal, industrial and Indian water users which we adopted in 1993. The CAWCD has also agreed to pay an additional \$15,000,000 to the United States in exchange for transfer of the headquarters complex to the District. It is our understanding and expectation that these funds will be used in combination with water to ensure equity among the various CAP tribal beneficiaries.

Benefits to CAP and its water users (including the federal government) accrue in the form of water supply and cost stability brought about by identification of a water supply available for the various Indian water right disputes, U.S. payment of OM&R costs on its allocation of CAP water through 2020, recognition of CAP target pricing policies and transfer to CAP of title to the CAP headquarters complex.

We will contribute positively to setting new directions in this dawning era of water management. We will be active participants in the continuing dialogue about the creation of a State Water Bank for allowing some interstate transfer of a portion of Arizona's unused allocations. We seek to recognize that other players who have been too often ignored in the past--like environmental interests and recreational water users--deserve a place at the table. We expect to continue our efforts in moving water use to an era that relies on continued conservation, better management and prioritization of water use largely based on a marketplace which distributes resources rationally to lower and higher value uses.

We appreciate the past support of the appropriations committees of Congress and urge you to approve Reclamation's request of \$92,725,000 for FY 1996 to further complete CAP facilities.

Thank you.

PREPARED STATEMENT OF GOVERNOR FIFE SYMINGTON, THE STATE OF ARIZONA

This testimony submitted on behalf of the people of the State of Arizona asks for continued support of funding for the various water related projects and programs which affect the State. Construction projects underway by the Bureau of Reclamation include: the Central Arizona Project; safety of dams work; and the Colorado River Water Quality Improvement Program. Construction projects by the Corps of Engineers include the Clifton, Holbrook, Nogales Wash, and Rillito River Flood Control Projects. Additionally, the testimony addresses the various planning and operation and maintenance programs by both the Bureau of Reclamation and Corps of Engineers. This testimony supports the levels of funding proposed by the President for the projects and programs under consideration by this Subcommittee and, in some cases, asks for consideration of increases.

CENTRAL ARIZONA PROJECT

The Central Arizona Project (CAP) continues to be the highest priority water supply project in Arizona. The importance of this project for the future of the State of Arizona cannot be overstated. The reliable delivery of Colorado River water to users in central and southern Arizona is essential to meet the demands of an ever increasing population.

There has been some very significant activity related to the Central Arizona Project since I appeared before this Subcommittee last year. I reported to you at that time that I had appointed a 34 member Governor's Central Arizona Project Advisory Committee to investigate methods that will enable us to better utilize our CAP supplies, and that some of the Committee's recommendations were being considered by the Arizona Legislature.

Today, I am pleased to report to you that the state legislature passed these measures in support of the Central Arizona Project, and I signed them into law. This legislation accomplished the following goals: established an environmental development fund to help pay for riparian enhancement and restoration projects in Arizona; authorized the continuation of an existing four cent ad valorem tax levied for groundwater demonstration projects and the making of those funds available for the repayment of the CAP as well as continuing recharge programs; and funded a facilitator position to support ongoing Indian water right settlements.

In addition, the Central Arizona Water Conservation District Board adopted a CAP water pricing structure that will allow continued agricultural use of CAP water (which assists in the reduction of groundwater pumping) while not harming municipal interests in the state. This action was supported by the Advisory Committee.

As you can see, our actions continue to show a strong and united support for the successful operation of the Central Arizona Project.

The most significant activity involving the CAP this past year was the landmark negotiations to determine Arizona's repayment obligation for the construction of the Central Arizona Project. In October 1993, the Secretary of the Interior declared the Central Arizona Project substantially complete and initiated the repayment phase of the CAP. At that time, the official cost allocation identified a difference of over \$400 million between Reclamation's reimbursable cost and the CAWCD contractual repayment obligation. Though the repayment negotiations between CAWCD and the Bureau of Reclamation have sometimes been difficult, they have also been highly productive, and I am pleased to report to you that the CAWCD and the federal government have reached substantial closure on a negotiated agreement in principle. This agreement resolves the amount of Arizona's repayment and fixes a schedule for that obligation. It also sets aside a significant amount of water for resolution of Indian water claims within the state, and creates a mechanism which gives CAP Indian communities the opportunity to provide input to CAWCD regarding proposed CAP decisions affecting Indian communities.

For Arizonans, this agreement culminates almost a century of hard work and planning. The canal is substantially complete, water is flowing in the aqueducts, and we have assurance that Arizona will have a secure renewable surface water supply for generations to come. Now, Arizona has begun fulfilling its obligation to repay the federal government for its share of the Project's construction costs.

The success of the Central Arizona Project would not have been possible without consistent levels of Congressional appropriations which have allowed the Bureau of Reclamation to maintain its construction schedule for the Project. These appropriations have fulfilled the Congressional commitment made in 1968 when the Central Arizona Project was authorized and renewed in 1986 when a comprehensive cost sharing agreement was executed among several entities in Arizona and the Department of the Interior. We appreciate your past support.

Regarding CAP related activities that continue to require funding, I believe that the budget recommendations are satisfactory. For FY 1996, the budget from the Lower Colorado River Basin Development Fund for Central Arizona Project facilities is \$92,725,000. These funds will support construction activity principally focused in six areas: continued replacement of damaged siphons, awarding facility relocations and site improvement contracts for Waddell Dam, continued construction on enlarged Roosevelt Dam, continued studies associated with the Tucson aqueduct, continued design and construction of Indian delivery systems, and the continued construction of sulfur dioxide scrubbers for the Navajo Generating Station.

The budget for the Hayden-Rhodes Division of the Central Arizona Project Aqueduct covers a number of activities. The most important activity is the continued replacement of siphons. The Central Arizona Project now provides water for a number of cities in central and southern Arizona. That supply must be reliable with a minimum chance of interruption. It is essential that faulty siphons on the aqueduct be replaced as soon as possible.

For the Regulatory Storage Division of the Central Arizona Project, the bulk of work will be on expansion of the storage capacity of Roosevelt Dam. In addition, completion contracts will continue for New Waddell Dam. The Roosevelt Dam enlargement is the last major feature of the storage facilities of the Project. It is important that this work be completed to assure the safety of the dam and to provide needed water conservation and flood control storage for central Arizona which services a population of more than two million people. Until the work is completed on the dam, the water conservation capabilities are restricted to less than what was available prior to construction. Floods over the past several years demonstrate the continuing need for additional water conservation and flood control space on the Salt River system.

The budget for the Indian water delivery and distribution systems covers a number of ongoing projects intended to assure that these distribution systems are constructed so that Indian communities with contracts for Central Arizona Project water can put this renewable surface water supply to use. One of the key water management objectives in Arizona is to put as much CAP water to use as possible. The Indian communities are major contractors of the supply and must be provided with the facilities to assure maximum use of this renewable water supply.

The Navajo Generating Station near Page, Arizona is an important feature of the Central Arizona Project. Approximately 24 percent of this power plant is dedicated to the Central Arizona Project for the purpose of providing power to the 14 pumping stations along the three aqueducts on the Project. To meet visibility requirements of clean air standards, the Department of the Interior, the Environmental Protection Agency, the Salt River Project, the State of Arizona and the Grand Canyon Trust agreed that sulfur dioxide scrubbers, which reduce sulfur dioxide to less than 10% of what is allowable for most states, would be installed at the generating station. A total of \$20,300,000 is budgeted in FY 1996 for the federal government's share of this effort.

In its report on the Energy and Water Development Bill for FY 1993, this Subcommittee expressed its concern that the Secretary of the Interior provide a reliable supply of municipal and industrial (M&I) water to southern Arizona users. The Subcommittee indicated that consistent with the terms of the Plan 6 Cost Sharing Agreement, the delivery reliability of this supply should be equivalent to that provided for other CAP M&I water users. The Subcommittee directed the Bureau to continue working with the affected water users in southern Arizona to resolve this issue. To address this concern, the Bureau of Reclamation reached a preliminary agreement with southern Arizona's water users to recommend the construction of a 15,000 acre foot terminal storage reservoir near Tucson, Arizona. Also, the agreement includes a major local commitment by the City of Tucson to construct associate underground storage facilities. The FY 1996 budget contains approximately \$2,850,000 for pre-construction activities for this storage feature and approximately 3,662,000 for the Tucson division of the CAP. I also request an additional \$3,000,000 for the terminal storage facility so that the Bureau can begin site acquisition and work to its full capability in FY 1996. Terminal storage is essential for Tucson to fully utilize its CAP allotment, and I encourage this subcommittee to appropriate these additional funds so this important feature can be completed as quickly and as efficiently as possible.

SAFETY OF DAMS

The FY 1996 budget for the Bureau of Reclamation continues to fund construction activities for safety of dams work in Arizona. Four dams located on the Salt and Verde Rivers have safety deficiencies and are located upstream from the Phoenix metropolitan area with its two million plus residents. The comprehensive Plan 6 Cost Sharing Agreement executed in 1986 provides that the Salt River Project will pay for a portion of the necessary repairs on these dams.

Safety of dams construction work is scheduled for Horseshoe and Bartlett Dams on the Verde River. A total of \$9,188,000 is budgeted for these two dams. Additionally, \$29,411,000 of the work scheduled for enlargement of Roosevelt Dam is for safety of dams purposes. The Salt River Project will contribute approximately \$5,899,000 to these efforts.

In addition to the work on the Salt and Verde River dams pursuant to the Plan 6 Cost Sharing Agreement, construction is scheduled to continue on Coolidge Dam, a feature of the San Carlos Irrigation Project. This dam, which is owned and operated by the Bureau of Indian Affairs, has been identified as top priority among those in the United States needing repairs to insure the safety of the people and property below the dam. We are pleased to see that funds (\$974,000) continue to be scheduled for repairs of this facility.

It is essential that needed safety of dams funds be appropriated to ensure that the construction is completed on time and the concern over the integrity of all of these structures can be eliminated.

OTHER BUREAU OF RECLAMATION PROJECTS

The Colorado River constitutes the largest source of long-term renewable surface water supplies available to the State of Arizona. With full use of the Central Arizona Project, the Colorado River will provide over 60 percent of Arizona's long-term water supply. Therefore, Arizona is very concerned about the future water quality of this essential supply and supports the Bureau of Reclamation's ongoing Colorado River water quality improvement program authorized under Title II of the Colorado River Basin Salinity Control Act. Title II established a program to respond to salinity control needs of Colorado River water users in the United States in compliance with the Clean Water Act. This program is cost shared, with the states providing 25 to 30 percent of the cost of project facilities and operation and maintenance costs. The budget presented to Congress asks for \$13,705,000 to fund the Bureau of Reclamation's projects in the salinity control program.

Arizona and the other Colorado River basin states are concerned about this level of appropriation. The Bureau of Reclamation has identified a total need of \$18,600,000 to proceed with the plan of implementation, which would achieve the goal of not exceeding established numeric criteria and threatening associated water quality standards. Legislation has been introduced to alleviate cost ceiling concerns expressed last year. We encourage this Subcommittee to appropriate the needed \$18,600,000. We support the \$2,300,000 funding request for the Yuma Desalting Plant Operation.

Arizona is pleased to see that the budget for the Bureau of Reclamation contains \$2,170,000 for endangered species conservation and recovery in the Lower Colorado River Region. A March 1994 decision by the U.S. Fish and Wildlife Service designated much of the Lower Colorado River Basin as critical habitat for endangered fishes. Arizona, California, and Nevada are working with the U.S. Fish and Wildlife Service, the Bureau of Reclamation, and other interested parties, to address these issues in a manner which will minimize potential impacts to water and power users in the Lower Colorado River Basin. The Lower Basin states, Fish and Wildlife Service, and Reclamation are pursuing the development and implementation of a memorandum of agreement, which may lead to the development of a program to address these issues. Because of its extensive responsibility for operation of the facilities on the River and the Secretary's authority to contract for the uses of that supply, it is essential that the Bureau of Reclamation be a major participant in the development of this program.

CORPS OF ENGINEERS PROJECTS

In addition to the activities of the Bureau of Reclamation, Arizona has several ongoing Corps of Engineers' projects. Arizona is extremely pleased that the President's budget includes funding for continued construction for the Clifton, Holbrook, Nogales Wash and Rillito River flood control projects. A total of \$8,130,000 is included in the budget for these projects.

Two years ago, Arizona experienced devastating floods on the Gila River system. This year, we are again experiencing severe levels of flooding. It is clearly important for us to continue to have an active flood control program in the state. The projects underway by the Corps of Engineers will add significantly to our flood control capability. It is critical that the United States continue funding these essential projects.

In addition to the construction, operation and maintenance activities of the Corps of Engineers, general investigation studies must also continue to be funded. Studies necessary to be funded include the Alamo Lake study; the Gila River, Gillespie Dam to Yuma, Arizona study; the Rio Salado, Salt River, Arizona study; and the Tucson Drainage Area study. The budget recognizes the need for the Gila River and Tributaries, North Scottsdale Drainage Area Study and the Gila River, Tortolita Drainage Area, Arizona study but did not adequately fund these efforts. We ask for an additional \$50,000 for the North Scottsdale study and an additional \$100,000 for the Tortolita Drainage Area study. We also ask for \$700,000 to initiate a Reconnaissance level study of the Rio De Flag area and an additional \$550,000 for a water conservation Reconnaissance Study of the Tat Momolikat Dam area.

In summary, the State urges this Subcommittee's continued support for funding for water-related projects in Arizona. The Central Arizona Project with related safety of dams and Indian water distribution system needs is at the top of the State's list with a total request of \$122,136,000. Additionally, the budget for the Colorado River Water Quality Improvement Program must be continued and additional funds provided if possible. The Corps of Engineers' budget is also necessary for continued flood control activities in the state with an additional request of \$1,400,000 to provide funding for four needed studies. Thank you for your attention to these very important matters.

PREPARED STATEMENT OF THE ARKANSAS BASIN DEVELOPMENT
ASSOCIATION, INC.

WITNESS LIST

ARKANSAS RIVER BASIN INTERSTATE COMMITTEE

ARKANSAS

- Wallace A. Gieringer
Chairman - Arkansas River Basin Interstate Committee
- Charles Maynard
Col., USA, Retired - Arkansas Basin Association
- Derrill Pierce
Executive Director - Pine Bluff-Jefferson County Port Authority
- Paul N. Revis
Executive Director - Arkansas Waterways Commission

KANSAS

- James O. Foster
Retired - Boeing Commercial Airplane Co.
- Gerald H. Holman
Senior Vice President - Wichita Area Chamber of Commerce
- Arthur T. Woodman
Woodman Architects

OKLAHOMA

- Glen L. Cheatham, Jr.
Manager - Waterways Branch - Oklahoma Dept. of Transportation
Executive Vice President - Arkansas Basin Development Association
- John Neas
President - National Petroleum Sales
- Robert W. (Bob) Portiss
Port Director - Tulsa Port of Catoosa
- Scott Robinson
Port Director - Port of Muskogee

SUMMARY OF ORAL STATEMENT

The entire Arkansas River Navigation System is at risk and its long-term viability is threatened. Some \$5 billion in federal and private investments and thousands of jobs are endangered. The System will remain at risk until the Montgomery Point Lock and Dam is constructed, which will take four to five years. The needed lock and dam was in the original project authorization. Thanks to Congressional insistence, the construction authority remains open.

The Arkansas River Basin Interstate Committee requests no additional funds beyond those in the President's budget. We urge the Congress to specifically in bill language "direct the Corps to complete the Montgomery Point Lock and Dam access road and service facilities development in FY 96 utilizing available funds and to proceed expeditiously with construction using appropriated funds of the Treasury instead of Inland Waterway Trust Fund moneys." This will ensure that the sorely needed facility is in operation as soon as possible at the lowest possible cost.

STATEMENT OF

ARKANSAS RIVER BASIN INTERSTATE COMMITTEE

Mr. Chairman and members of this distinguished Committee, my name is Wallace Gieringer. I have recently retired as Executive Director of the Pine Bluff-Jefferson County (Arkansas) Port Authority. It is my honor to serve as Chairman of the Arkansas River Basin Interstate Committee, members of which are appointed by the governors of the great states of Arkansas, Colorado, Kansas, Missouri and Oklahoma.

As Chairman, I will be the spokesman for the Committee and respectfully request that the copies of each state's individual statement be made a part of the record, along with this testimony.

We collectively have the responsibility to coordinate water resource matters among the states and to speak for the Arkansas River Basin in appearances before committees of Congress and regulatory agencies. We are joined today by members of the Interstate Committee and others from our states who are present in support of our request.

Mr. Chairman, the members of the Interstate Committee have agreed to focus on one project vital to the five-state area and beyond. We're much like the man who said "I have good news and bad news."

The good news is that the McClellan-Kerr Arkansas River Navigation System is quite a success story. The \$1.4 billion federal infrastructure investment authorized by the Congress has triggered an additional \$3.5 billion in public and private investments. Some 53,000 jobs have been created. 1994 was a record year for tonnage with over 11 million tons of commodities.

The bad news is that the future of this wonderful multi-purpose navigation system is threatened. It is as if we are sitting on a series of time bombs. Each bomb is more serious, more deadly than the one preceding it. First the system will be crippled - eventually destroyed.

Let me explain.

- The water level of the Mississippi River controls the level of the entrance channel. In recent years, the surface of the Mississippi has lowered resulting in navigation restrictions on, and occasional closing of, the entrance channel. The Corps of Engineers has already found it necessary to dredge to the depth of the concrete sill of Norrell Lock and Dam -- the first dam upstream -- to maintain the authorized 9' entrance channel (exhibit 1).
- The low water level of the Mississippi is projected by the Corps to continue to decline. Consequently, the navigable depth of the entrance channel will become less and less, thereby drastically reducing the carrying capacity for barges going to or from the system. By 2030, not even empty tows will be able to enter or leave the navigation system. They will be resting on the bottom with no water (exhibit 2). All the bombs will have exploded!
- The Montgomery Point Lock and Dam, to be constructed 1/2 mile from the confluence, will ensure reliable navigation, protect the billions in federal and private investments, and preserve thousands of jobs related to the waterway.

Mr. Chairman, we thank you and the members of this most important committee for your foresight in FY 1991 by appropriating \$1 million for purchase of the land required for the project. Using those funds, the land is being purchased in this year.

Your recognition of the urgency of constructing Montgomery Point and your appropriations in the last five budgets is sincerely appreciated. We are also grateful, and it should be noted, that the President's budget includes \$3.4 million for Montgomery Point for FY 1996

The bad news is the time bombs continue to tick and time is of essence. The good news is that Montgomery Point Lock and Dam will defuse those bombs, make them harmless, and save the system. But further congressional action is needed!

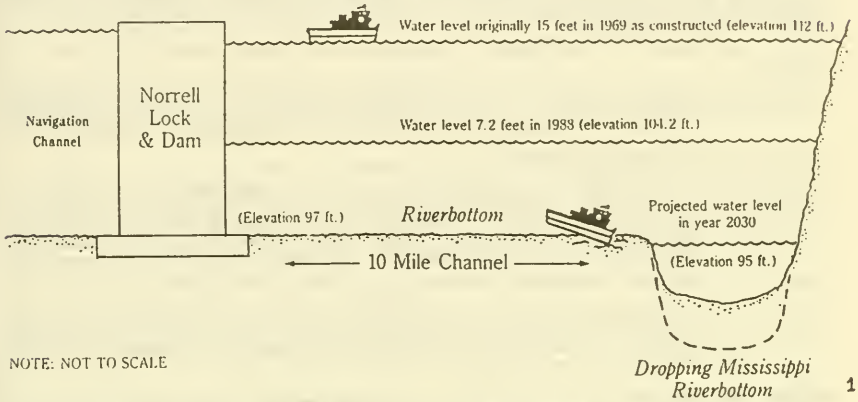
We request no additional funds beyond those in the President's budget. We urge the Congress to specifically in bill language "direct the Corps to complete the access road and service facilities development in FY 96 utilizing available funds and to proceed expeditiously with construction using appropriated funds of the Treasury instead of Inland Waterway Trust Fund moneys." This will ensure that the sorely-needed facility is in operation as soon as possible at the lowest possible cost.

In conclusion, Mr. Chairman, the entire Arkansas River Navigation System remains at risk and its long-term viability is threatened. The System will remain at risk until Montgomery Point is constructed, which will take four to five years. Some \$5 billion in federal and private investments and thousands of jobs are endangered. The needed lock and dam was in the original project authorization. Thanks to Congressional insistence, the Construction authority remains open.

Mr. Chairman, we respectfully request that you and members of your staff review and respond in a positive way to the attached individual statements from each of our states which set forth specific requests pertaining to those states.

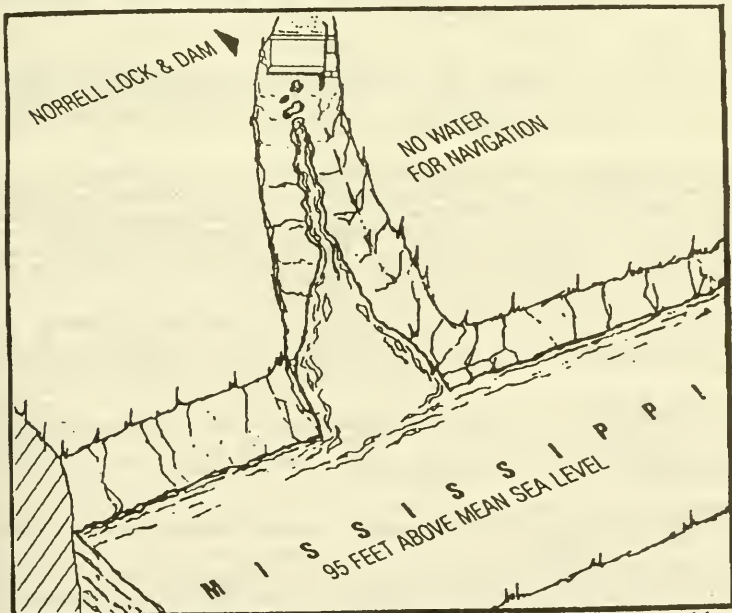
We thank you for your consideration and assistance and are deeply appreciative of the foresight and wisdom you and your colleagues have shown in providing solutions to water resource problems each and every year.

Arkansas River Navigation System Entrance Channel PROFILE



NOTE: NOT TO SCALE

2030 — WITHOUT LOW-WATER LOCK AND DAM



The surface level of the Mississippi will continue to decline until reaching 95 feet above mean sea level — roughly 15 feet lower than the original design elevation at the confluence, and two feet lower than the sill of Norrell Lock and Dam, which is 97 feet above mean sea level. Without corrective action, not even empty tows could go to or from the rest of the system. They would be resting on the bottom with no water

**STATEMENT OF
WALLACE A. GIERINGER, CHAIRMAN FOR ARKANSAS**

Mr. Chairman and members of the Committee, my name is Wallace Gieringer. I am the recently retired Executive Director of the Pine Bluff-Jefferson County Port Authority and serve as Arkansas Chairman for the Interstate Committee. Other committee members representing Arkansas are Messrs. Wayne Bennett, soybean and rice farmer from Lonoke; Michael C. Carter, attorney from Fort Smith; Colonel Charles C. Maynard, U.S. Army, retired; and Barry McKuin, Executive Vice President for Winrock Farms, Inc. at Morrilton.

The McClellan-Kerr Arkansas River Navigation System is quite a success story. The \$1.4 billion federal infrastructure investment authorized by the Congress has triggered an additional \$3.5 billion in public and private investments. Some 53,000 jobs have been created.

Today the future of this wonderful navigation system is threatened. Let me explain.

- * The water level of the Mississippi controls the level of the entrance channel. In recent years, the surface of the Mississippi has lowered resulting in navigation restrictions on, and occasional closing of, the entrance channel.
- * The low water level of the Mississippi is projected by the Corps to continue to decline. Consequently, the navigable depth of the entrance channel will continue to lower thereby drastically reducing the carrying capacity for barges going to or from the system. By 2030, not even empty tows will be able to enter or leave the navigation system. They will be resting on the bottom with no water.
- * The Montgomery Point Lock and Dam to be constructed 1/2 mile from the confluence will insure reliable navigation, protect the billions in federal and private investments, and preserve thousands of jobs related to the waterway.

We are here, Mr. Chairman, to thank you and the members of this most important committee for your past assistance and to urge appropriation of funds necessary to construct the urgently needed Montgomery Point Lock and Dam. Your foresight in FY '91 in appropriating \$1 million for purchase of the land required for the project was crucial. Using those funds, the land is being purchased in this year.

Your recognition of the urgency of constructing Montgomery Point and your appropriations in the last five budgets is sincerely appreciated. We are also grateful, and it should be noted, that the President's budget includes \$3.4 million for Montgomery Point for FY 1996.

Mr. Chairman and Members of the Committee, we request no additional funds beyond those in the President's budget. We urge the Congress to specifically in bill language "direct the Corps to complete the access road and service facilities development in FY 96 utilizing available funds and to proceed expeditiously with construction using appropriated funds of the Treasury instead of Inland Waterway Trust Fund moneys." This will ensure that the sorely-needed facility is in operation as soon as possible at the lowest possible cost.

The urgency of the project is such that design and construction need to be carried out concurrently rather than sequentially, as now planned. To do otherwise is causing a delay in providing the needed structure and jeopardizing the integrity of the entire McClellan-Kerr Arkansas River Navigation System.

Other projects in our region are vital to the environment, social and economic well-being of the region and our nation. We support the Administration's budget requests for continued construction of needed features to the McClellan-Kerr Arkansas River Navigation System and strongly recommend that you favorably consider the following in your deliberations:

Support for all funding included in the President's budget for the construction, operation and maintenance of the McClellan-Kerr Arkansas River Navigation System.

Continue construction authority for the McClellan-Kerr Arkansas River Navigation Project until remaining problems identified by the Little Rock District Corps of Engineers have been satisfactorily resolved.

Continue to fund Preconstruction Engineering and Design (PED) activities for the Arkansas River Levees project as authorized by Section 110 of the Water Resources Development Act of 1990 to include the Tucker Creek area

in the vicinity of Conway, AR. These levees have been previously studied in the cost-shared Arkansas River, Arkansas and Oklahoma, Feasibility Study.

Fund continued repair and rehabilitation of the power units at the Dardanelle Lock and Dam which first went into operation in 1965. After this work is completed, power output will be increased by 13%.

Direct the Corps to complete the Morgan Point Environmental Restoration project and allow the local sponsor to receive credit for in-kind services.

Provide funding and direct the Corps to complete the installation of tow haulage equipment at Norrell Dam and Dam 2 and thereafter on the locks and dams between Little Rock and Tulsa. This efficiency feature will reduce lockage time by as much as 50% while permitting tonnage to double in each tow with only a minor increase in operating cost.

We also urge the Congress to continue to encourage the Military Traffic Management Command to redouble its efforts to identify opportunities to accelerate use of the nation's navigable waterways to move military cargoes and thereby help contain the nation's defense costs.

In conclusion, Mr. Chairman, the entire Arkansas River Navigation System remains at risk and its long-term viability is threatened. The system will remain at risk until Montgomery Point is constructed, which will take four to five years. Some \$5 billion in federal and private investments and thousands of jobs are endangered. The proposed lock and dam was in the original project authorization. Thanks to Congressional insistence, the construction authority remains open.

We fully endorse the statement presented to you today by the Chairman of the Arkansas River Basin Interstate Committee. We appreciate the opportunity to testify before your most important subcommittee and urge you to favorably consider our request for needed infrastructure investments in the natural and transportation resources of our nation.

The water resource projects in the Kansas portion of the Arkansas River Basin have been carefully reviewed and reflect accurately the need. Many of the projects are safety, environmental and conservation oriented.

In addition to the projects summarized below, we state our unanimous support for the \$3.4 million included in the President's budget for the critical **Montgomery Point Lock and Dam Project** to maintain viable navigation for commerce between the McClellan-Kerr Waterway and the Mississippi River.

We ask for your support for these important Bureau of Reclamation projects:

1. **City of Wichita/Groundwater Management District No. 2/State of Kansas Groundwater Recharge Demonstration Projects** - a \$3,500,000 pilot project to demonstrate the feasibility of recharging a major groundwater resource supplying water to nearly 500,000 municipal, industrial and irrigation users and will also reduce potential degradation of the existing groundwater quality by minimizing migration of saline water.
2. **Cheney Reservoir** - on the North Fork of the Ninnescah River providing natural treatment of inflows in the upper reaches of Cheney Reservoir to control poor water quality due to agricultural runoff. The funding request is \$300,000 for the Department of Agriculture and \$1,411,400 for the Environmental Protection Agency.
3. **On-going Water Quality/Environmental Research** - Authorization of on-going Bureau of Reclamation research is critical to protecting existing supplies.

We ask for your support for these equally important projects of the Corps of Engineers:

1. **Arkansas City, Kansas Flood Protection** - to protect homes and businesses from catastrophic damages resulting from either Walnut River or Arkansas River flooding. Funding in the amount of \$4,612,000 is requested.
2. **Winfield, Kansas Flood Protection** - this project will raise and extend an existing levee to provide badly needed flood control for the city. The funding request is \$670,000.
3. **Grand (Neosho) River/Basin** - Research in the amount of \$2,500,000 to determine the source of flood problems upstream of Grand Lake and to identify potential solutions. The existing problems and needed solutions impact both Kansas and Oklahoma.
4. **On-going Water Quality/Environmental Protection Research** - Authorization of on-going Corps of Engineers research is essential as is demonstration project funding.
5. **Kanapolis Lake Water Quality Storage Reallocation** - We urge you to support the Kansas Water Office request of the Corps of Engineers to reallocate existing water quality storage for public supply availability for agricultural communities.

We urge your support of this Department of Interior project:

1. **Quivira National Wildlife Refuge** - An engineering study to identify the watershed-based options available for producing the most efficient use of resources for the refuge and irrigation needed to support the area agricultural economy. The funding request is \$760,000.

Statement of Gerald H. Holman, Chairman for Kansas

Mr. Chairman and members of this distinguished Committee, I am Gerald H. Holman, Senior Vice President of the Wichita Area Chamber of Commerce, Wichita, Kansas and Chairman of the Kansas Interstate Committee for the Arkansas River Basin. This statement is submitted today, representing the Kansas Delegation. Other members of the Kansas Delegation are Arthur T. Woodman, Architect, with offices in Wichita; James O. Foster, (Retired) manager of Special Projects, Boeing Commercial Airplane Co., Wichita Division; and Frank Liebert, Attorney-At-Law, Coffeyville.

We are honored to join with our colleagues from the states of Arkansas, Colorado, Missouri and Oklahoma, which five (5) states, including Kansas, comprise the Arkansas River Basin Interstate Committee. We appear before you in unison today and fully endorse the statement of the Chairman of the Arkansas River Basin Interstate Committee.

In addition to the important projects listed below, we state our unanimous support for the construction of the critical **Montgomery Point Lock and Dam Project** to maintain viable navigation for commerce between the McClellan-Kerr Waterway and the Mississippi River. This inland waterway is vital to the economic health of the five-state area and your support is needed to maintain its future viability. We hereby state our unanimous support for the \$3.4 million included in the President's budget for the project.

We support the statement of the Arkansas River Basin Interstate Committee that **no additional funds are requested beyond those in the President's budget. We urge the Congress to specifically in bill language "direct the Corps to complete the Montgomery Point Lock and Dam access road and service facilities development in FY 96 utilizing available funds and to proceed expeditiously with construction using appropriated funds of the Treasury instead of Inland Waterway Trust Fund moneys."** This will ensure that the sorely-needed facility is in operation as soon as possible at the lowest possible cost.

The water resource projects in the Kansas portion of the Arkansas River Basin have been carefully reviewed by the Kansas Delegation and reflect accurately the need. Many of the projects are safety, environmental and conservation oriented. We are grateful for your past commitment and respectfully request your continued commitment.

We ask your support for these important Bureau of Reclamation projects for the Wichita area:

1. **City of Wichita/Groundwater Management District No. 2/State of Kansas Groundwater Recharge Demonstration Project** - this is the continuation of a Bureau project to demonstrate the feasibility of recharging a major groundwater resource supplying water to nearly one-half million municipal, industrial and irrigation users. The technology also has application to other areas throughout the nation. The full scale project, when implemented, will capture flood flows from the Little Arkansas River providing water for use during times of low rainfall or dry conditions and will also reduce potential degradation of the existing groundwater quality by minimizing migration of saline water. This project is vital to the future of the metropolitan Wichita area and surrounding farming communities. Partial project funding in the amount of \$3,500,000 is requested. Supporting letters, signed by the Governor, are attached.
2. **Cheney Reservoir** - the reservoir is a major and critical component of Wichita's water supply resources. Two environmental problems threaten the water quality and longevity of the reservoir. One is sedimentation from soil erosion and the other is the amount of phosphates entering the water resulting in offensive taste and odor problems. Potential pollution sites in the watershed above the reservoir have been identified along with best management practices that can help reduce the pollution from those sites. While the Bureau constructed the reservoir and has remained involved in on-going support, cost share funding is requested for the Department of Agriculture, Consolidated Farm Services Agency, through the ACP program in the amount of \$300,000 and \$1,411,400 for the Environmental Protection Agency Clean Lake Grant for implementing soil conservation practices consistent with the Management Plan.

3. **On-going Water Quality and Environmental Research** - Aggressive and innovative treatment techniques must be identified and implemented to protect our valuable water resources from increasing environmental problems. Authorization of on-going Bureau of Reclamation research is critical to protecting existing resources.

You have given your previous support to many important local protection projects in Kansas including Great Bend and Halstead flood control. Both projects are now completed and we are most grateful for the construction authorization. Both projects will stop flooding and citizens of these communities and surrounding agricultural areas will benefit from your foresight for generations to come. The Halstead project was delayed in completion and the floods of 1993 cost many millions of dollars in damage which could have been prevented by an earlier completion. Fortunately, loss of life did not occur. Since our agricultural communities have historically experienced major flood disasters, we are justifiably interested in rapidly moving to completion other needed projects. However, our small communities do not have the funds nor engineering expertise necessary to provide adequate flood damage reduction measures.

Therefore, consistent with your previous authorizations, we ask for your support for the following Corps of Engineers projects:

1. **Arkansas City, Kansas Flood Protection** - this project is in response to a critical need to protect homes and businesses from catastrophic damages that would result from either Walnut River or Arkansas River flooding. The Corps has extensively coordinated with the city and various state agencies in the development of this project, which when completed, will eliminate damage in a multi-county area and also result in benefits to the state of Oklahoma just a few miles south of the project. The estimated federal cost for this project is \$2,612,000
2. **Winfield, Kansas Flood Protection** - this project will raise and extend an existing levee to provide badly needed flood control for the city. Your continued support of this important project is requested in the amount of \$670,000.
3. **Grand (Neosho) River Basin** - The Grand-Neosho River Committee, formed at the request of both the Kansas and Oklahoma Congressional Delegation, and the Kansas-Oklahoma Flood Control Alliance are evaluating flood problems in the Grand-Neosho River Basin. Research to determine the source of flood problems upstream of Grand Lake, to evaluate whether the Corps of Engineers has adequate flood control easements in the upper reaches, and to identify potential solutions is needed. The existing problems and needed solutions impact both Kansas and Oklahoma. An initial research allocation of \$2,500,000 will obtain necessary mapping and other base data. We urge you to authorize this important research.
4. **On-going Water Quality/Environmental Protection Research** - Environmental problems are increasing the importance of continued research to protect our valuable water resources. Aggressive and innovative treatment techniques must be identified and implemented. Authorization of on-going Corps of Engineers research is essential, and as appropriate, demonstration project funding.
5. **Kanapolis Lake Water Quality Storage Reallocation** - agricultural communities in central Kansas are in need of additional public water supplies. A cost-effective solution is reallocating existing water quality storage in Kanapolis Lake for public supply availability. The Kansas Water Office has made a request of the Corps of Engineers to authorize the reallocation which is a most expeditious solution for central Kansas. We urge you to support our request of the Corps of Engineers.

Your authorization of funding for a most important U.S. Department of Interior, Fish & Wildlife Service project is also requested:

1. **Quivira National Wildlife Refuge** - this is a joint project involving the U.S. Fish & Wildlife Service - Region 6, the State of Kansas, the local groundwater management district and the Water Protection Association of Central Kansas. Quivira provides a resting area for waterfowl and endangered species during their annual migrations in the Central Flyway. The refuge is comprised of a series of shallow pools totaling about 6,500 surface acre-feet and is part of the Rattlesnake Creek basin. The Rattlesnake Creek basin has experienced significant groundwater and streamflow declines in recent years due to climatic conditions as well as expansion of irrigated agriculture. An engineering feasibility study is needed to identify the watershed-based options available for producing the most efficient and effective use of the water resources of the Rattlesnake Creek basin to protect the

Wildlife Refuge as well as the agriculture economy of the area. Your support to authorize funding in the amount of \$760,000 for the U.S. Department of Interior, Fish & Wildlife Service, is requested for this project.

Finally, we are most concerned with the proposal to limit participation of both the Corps of Engineers and Bureau of Reclamation in development of water resources infrastructure. It is vital to have the integrity and continuity these agencies provide on major public projects. Your thorough reconsideration of this new direction will be greatly appreciated.

Mr. Chairman and Members of this Committee, we thank you for the dedicated manner in which you and your distinguished colleagues in the Congress of the United States have dealt with the Water Resources Programs and for allowing us to present our views and recommendations to you. We look forward with great expectations and hope for the future of water resource development in Kansas and the Arkansas River Basin.

Ms. Elizabeth Ann Rieka
 Assistant Secretary for Water and Science
 U.S. Department of Interior
 Office of the Secretary
 Washington, D.C. 20240

October 28, 1993

Dear Assistant Secretary Rieka:

The State of Kansas water-related agencies and I are writing to you to express our support for the Bureau of Reclamation's funding of a pilot project proposed by the City of Wichita in the Equus Beds Aquifer area in south central Kansas.

The state water-related agencies, including the Kansas Water Office, the Division of Water Resources and the Kansas Department of Health and Environment, received a briefing and presentation on the proposed project that would allow the city of Wichita to make conjunctive use of local ground water resources, surplus surface water flows and Cheney Reservoir, a Bureau of Reclamation lake just west of town. This project has a great deal of local support and the support of the Equus Beds Groundwater Management District No. 2, the political entity that manages the bulk of the ground water proposed to be used by the city.

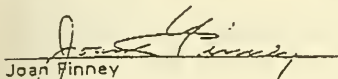
This proposal would be an alternative for the City of Wichita to a very controversial pipeline project that would involve interbasin transfers of water over a distance of approximately 150 miles. The city and the state agencies and I believe that this creative alternative is a much more promising means of meeting the water supply needs of the metropolitan Wichita area well into the future.

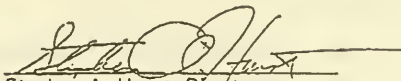
The City of Wichita informed the state agencies during their briefing that the Bureau of Reclamation originally proposed to fund and support the pilot project but is now indicating that funds will not be available for such a project. We are aware of and greatly appreciate your sincere desire to make some major improvements in the Bureau of Reclamation's policies and philosophy including the promotion of creative solutions to water supply problems and sustainable use of the water resources of the nation with an emphasis on environmentally sound water conserving projects. We believe that the Wichita pilot project fits perfectly into this new Bureau of Reclamation/Department of Interior philosophy. It is a creative solution geared to conservation and sustainable use of the resources, both surface and ground water in the surrounding area. We believe that this project could be used by the Department of Interior and the Bureau as a shining example of your new philosophy toward water management. We strongly encourage you to financially support this pilot project which is very important, not only to the City of Wichita, but to the long-term economic growth of the State of Kansas.

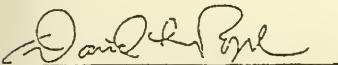
We appreciate your help and support on this very important matter. We have attached some briefing materials excerpted from the engineering reports on this

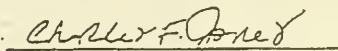
project. If you have any questions, please feel free to contact Stephen A. Hurst, Director of the Kansas Water Office, at (913) 296-3185.

Sincerely yours,


Joan Finney
Governor of Kansas


Stephen A. Hurst, Director
Kansas Water Office


David L. Pope, Chief Engineer
Division of Water Resources


Charles F. Jones, Director
Division of Environment
Kansas Department of Health and Environment

RATTLESNAKE CREEK BASIN/QUIVIRA PARTNERSHIP AGREEMENT

GOALS OF PARTNERSHIP:

To work in a cooperative manner to develop and implement solutions to water resources problems within the Rattlesnake Creek basin; to use a community involvement approach to address issues in the Rattlesnake Creek basin; to provide a line of communication between the Division of Water Resources, Subbasin Water Resources Management Program, Basin Management Team, the residents and water users located in the targeted Rattlesnake Creek basin.

STATEMENT OF ISSUES:

Fluctuations in the aquifer levels in the Rattlesnake Creek Basin result in flows that are inadequate in some years or portions of some years to allow objective level management of Quivira National Wildlife Refuge. Groundwater withdrawals, especially during drought conditions, reduce surface water flows. Irrigation demands for water often coincide with the demands for water at the refuge. The Partnership members desire, through management of available supplies, to assure adequate water for all users, to sustain profitable agriculture and abundant wildlife and habitat and to insure an acceptable standard of living for basin residents.

PARTNERS OBJECTIVES:

U.S. Fish and Wildlife Service - Assure adequate quality and quantity of water for the management of Quivira National Wildlife Refuge.

Division of Water Resources - Manage groundwater and surface water of Rattlesnake Creek Basin within the framework of the Kansas Water Appropriation Act, K.S.A. 82a-701 et seq., enacted June 28, 1945 as subsequently amended.

Big Bend Groundwater Management District No. 5 - Preserve and manage sustained yield of water for all users within the Rattlesnake Creek Basin.

Water Protection Association of Central Kansas - Manage and encourage the conservation of water within the Rattlesnake Creek Basin to meet the needs of irrigated agriculture and other water users in the basin.

JOINT PRINCIPLES:

1. The partners are committed to a cooperative approach and to acknowledge the interests of all residents within the basin.

2. Water conservation shall be a guiding principle for all partners.

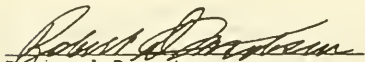
3. The partners are committed to joint planning efforts, to minimize duplication of work and maximize use of available resources.

4. The Partnership shall recognize the different obligations, duties, responsibilities and roles that each partner has outside the Partnership.

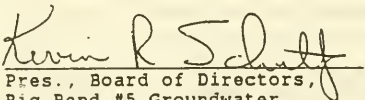
PARTNERS' ROLES WITHIN THE PARTNERSHIP:

1. Partnership meetings shall provide a forum for all partners to share any data, studies or information concerning the issues stated above. Each partner shall be committed to sharing with all other partners knowledge of planned or on-going studies, research, or investigations regarding any of the issues stated above.

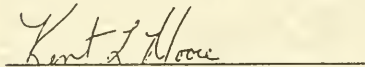
2. The partners will develop action plans which are agreed upon by all partners in order to achieve the Partnership goals.


Regional Director
U.S. Fish and Wildlife Service

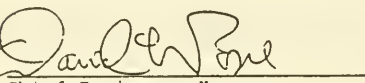
6/23/94
date


Pres., Board of Directors,
Big Bend #5 Groundwater
Management District

6-9-94
date


Pres., Board of Directors,
Water Protection Association
of Central Kansas

6-6-94
date


Chief Engineer, Kansas
Division of Water
Resources

June 6, 1994
date

Ms. Elizabeth Ann Rieke
Assistant Secretary for Water and Science
U.S. Department of Interior
Office of the Secretary
Washington, DC 20240

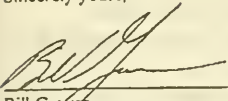
February 21, 1995

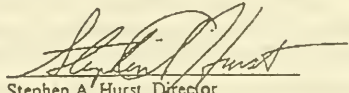
Dear Assistant Secretary Rieke:

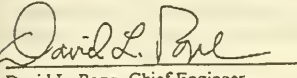
As the new governor, it appears appropriate to reaffirm my administration's continued support of the Bureau of Reclamation's funding of a pilot project proposed for the City of Wichita in the Equus Beds Aquifer area in South Central Kansas.

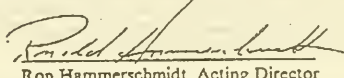
For your information, attached is a copy of the original letter of support dated October 28, 1993.

Sincerely yours,


 Bill Graves
 Governor of Kansas


 Stephen A. Hurst, Director
 Kansas Water Office


 David L. Pope, Chief Engineer
 Division of Water Resources


 Ron Hammerschmidt, Acting Director
 Division of Environment
 Kansas Department of Health and
 Environment

Senator Dole and Representative Roberts,

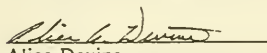
February 10, 1995

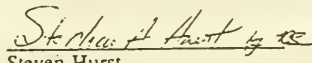
The Kansas State Water Plan has identified critical water resources concerns in the Rattlesnake Creek Subbasin in south-central Kansas. To address the particular concerns of groundwater declines and stream flow depletions, the Chief Engineer of the Division of Water Resources, Kansas Department of Agriculture recommended the development and implementation of a special management plan tailored to this specific subbasin. The Kansas Water Authority has agreed and has recommended funding from the State Water Plan Fund for the past two years. The Kansas Legislature and Governor have approved those recommendations, essentially as presented.

The State's reaction to the concerns identified in this area are outlined in the attached briefing paper. In addition, local water users and the local agency charged with management and protection of groundwater have been active participants. Led by the organization Water Protection Association of Central Kansas (Water PACK), local water users and other interested parties are pursuing the possibility of developing additional water storage and/or water control facilities at Quivira Wildlife Refuge, owned and operated by the U.S. Fish and Wildlife Service, U.S. Department of the Interior. These facilities, if feasible, would improve water management at the Refuge and reduce its dependence on unreliable stream flows in the Rattlesnake Creek.

Such facilities, if they prove feasible from both an engineering and economic standpoint, would be important components in any overall water management program the Chief Engineer of the Division Water Resources might adopt for the Rattlesnake Creek Subbasin. Because water storage or control facilities at the Refuge would have a significant impact on selected water management strategies and potentially positive effects on the quantity of water available for use within the Subbasin, the Secretary of the Department of Agriculture and the Director of the Kansas Water Office support the proposed feasibility study.

Sincerely,


 Alice Devine
 Secretary
 Kansas Department of Agriculture


 Stephen Hurst
 Director
 Kansas Water Office

**SUMMARY
STATEMENT OF
JAMES M. HEWGLEY, JR., CHAIRMAN FOR OKLAHOMA**

Mr. Chairman and Members of the committee, I am James M. Hewgley, Jr., Oklahoma Chairman of the Arkansas River Basin Interstate Committee, from Tulsa, Oklahoma.

Regarding Montgomery Point Lock and Dam - we request no additional funds beyond those in the President's budget. We urge the Congress to specifically in bill language "direct the Corps of Engineers to complete the access road and service facilities development in FY 96 utilizing available funds and to proceed expeditiously with construction using appropriated funds of the Treasury instead of Inland Waterway Trust Fund moneys." This will ensure that the needed facility is in operation as soon as possible at the lowest possible cost.

The Interstate Committee recommends that \$250,000 be made available to the Tulsa District, Corps of Engineers to initiate an *Assessment of the McClellan-Kerr Arkansas River Navigation System and related purposes*, in FY '96.

The committee requests an initial study allocation of \$2.5 million to obtain necessary mapping and other base data to evaluate the flooding problems in the Grand-Neosho River Basin.

The committee requests support of the President's budget which includes \$350,000 in fiscal year 1996 to initiate a reconnaissance study of the Cimarron River Basin.

We encourage you to continue to fund the Partners for Environmental Progress (PEP) program to assist small cost sharing sponsors deal with their infrastructure problems and facilitate infusion of private capital into heretofore public projects.

In the matter of reauthorization of the *Endangered Species Act*, the Congress should consider amending the Act to require the consideration of economic impacts in a decision to list a species as endangered as well as mandatory designation of critical habitat at the time the specie is listed, if critical habitat is to be considered.

Mr. Chairman, this is only a summary of some of the most important items contained in the detailed statement attached hereto.

**STATEMENT OF
JAMES M. HEWGLEY, JR., CHAIRMAN FOR OKLAHOMA**

Mr. Chairman and members of the committee, I am James M. Hewgley, Jr., Oklahoma Chairman of the Arkansas River Basin Interstate Committee, from Tulsa, Oklahoma.

It is my privilege to present this statement on behalf of the Oklahoma Members of our committee in support of adequate funding for water resource development projects in our area of the Arkansas River Basin. Other members of the Committee appointed by the Governor are: Mr. Harold B. Scoggins, of Muskogee; Mr. E. R. Albert, Jr., Tulsa; Mr. Robert S. Kerr, Jr., Oklahoma City; and Mr. Coleman Fite, Muskogee.

Together with representatives of the other Arkansas River Basin states, we fully endorse the statement presented to you by the Chairman of the Arkansas River Basin Interstate Committee. We appreciate the opportunity to present our views of the special needs of our State concerning several studies and projects.

As we have testified in the past, serious problems have arisen at the waterway entrance to the McClellan-Kerr Arkansas River Navigation System. Extensive testing has proved that construction of Montgomery Point Lock and Dam will be necessary to correct the problem. This project must be started soon to regain/maintain the shippers confidence in the reliability of the system.

Your recognition of the importance of constructing Montgomery Point Lock and Dam and your appropriations for the last five budget cycles is sincerely appreciated. We are very grateful that the President's budget includes \$3.4 million for Montgomery Point in FY 1996.

Mr. Chairman, and Members of the Committee, We request no additional funds beyond those in the President's budget. We also urge the Congress to specifically in bill language "direct the Corps of Engineers to complete the access road and service facilities development in FY 96 utilizing available funds and to proceed expeditiously with construction using appropriated funds of the Treasury instead of Inland Waterway Trust Fund moneys." This will ensure that the needed facility is in operation as soon as possible at the lowest possible cost.

Planning, design and construction need to be carried out **concurrently** rather than sequentially, as is now planned. Otherwise there will only be more unnecessary delays in providing the reliable service that the shippers have been promised from the opening of the system.

Mr. Chairman, members of this distinguished Committee, we would like to respectfully remind each of you that this navigation system has brought low cost water transportation to Oklahoma, Arkansas and surrounding states. **The Federal Government has invested \$1.4 billion in constructing the system and there has been \$3.5 billion invested by the public and private sectors to develop the landside facilities in the interim and more than 53,000 jobs have been created as a result.**

We are pleased that the President's budget includes funds to advance work for Flood Control in Oklahoma. Of special interest to our committee is funding of \$4.4 million for Mingo Creek, Tulsa, Oklahoma, and \$1.7 million for Fry Creeks, Bixby, Oklahoma.

The Interstate Committee recommends that \$250,000 be made available to the Tulsa District, Corps of Engineers, to initiate an *Assessment of the McClellan-Kerr Arkansas River Navigation System and related purposes* in FY '96. This assessment will evaluate the economic impacts that the construction and operation of this major resource system has had on the Nation, the impacted states and local areas along the system. Project outputs will be identified as to incidence of principal beneficiary and nature and magnitude of the outputs (benefits). Project features will be examined from the perspective of whether or not greater efficiencies can be achieved by de-federalizing project components including the operation and maintenance of those features such as transfer to non-federal governmental bodies or the private sector. Such an assessment will provide a basic model for similar projects around the Nation.

We also support a proposed study supported by the Grand-Neosho River Committee which would evaluate water resource problems in the Grand-Neosho River Basin. The Grand-Neosho River Committee is a multi-state organization with members representing a full range of basin concerns and water resource development uses. We support the initiation of studies to determine the adequacy of real estate easements necessary for flood control operations of Grand Lake. The study would determine the source of flood problems upstream of Grand Lake, would evaluate whether the Corps of Engineers has adequate flood control easements in the upper reaches of Grand Lake, and identify potential solutions to the upstream flooding problems. Additional studies could also evaluate impacts to other basin water resource needs and interests and could evaluate a broad range of water resource problems and solutions in Kansas and Oklahoma. The committee requests an initial study allocation of \$2.5 million in fiscal year 1995 to obtain necessary mapping and other base data to conduct the study. Additional allocations over the next four years totalling \$750,000 would complete the study.

In addition to the construction funding provided, we are pleased that funds were provided to study water resource development needs in the Cimarron River Basin. Studies conducted by the Tulsa District in the 1970's identified the potential for flood damage reduction measures in the Cimarron River Basin. Several potential multiple purpose reservoirs were considered for development in response to needs for flood control, water supply, fish and wildlife and recreation. Development and operation of these projects in conjunction with the existing system of reservoirs in the Arkansas River Basin would provide for flood damage reduction along the Cimarron River downstream, as well as along the Arkansas. These projects would also offer the potential for development of hydropower and navigation benefits along the McClellan-Kerr Arkansas River Navigation System. Considerable local interest has developed in these projects, particularly the potential Crescent Lake which would be located about 15 miles north of Oklahoma City, and the Tulsa District has received letters of support for initiation of reconnaissance studies from the Oklahoma Water Resources Board and the mayors of Guthrie, Crescent and Oklahoma City. The committee requests support of the President's budget which includes \$350,000 in fiscal year 1996 to initiate a reconnaissance study of the Cimarron River Basin.

The Oklahoma Arkansas River Basin Interstate Committee also requests your continued support and funding for the Partners for Environmental Progress (PEP) program which was initiated under the Energy and Water Development Appropriations Act for fiscal year 1991 and has been re-approved and funded every year through fiscal year 1995. We appreciate and support the funding provided in the President's budget for fiscal year 1996. The PEP program encourages greater private sector investment in water dependant environmental infrastructure which has previously been publicly funded. Small towns, counties, water and sewer authorities, utility districts and other public bodies who would not otherwise have the technical support or financial expertise are provided that support by the Corps of Engineers. We encourage you to continue to fund this important program to assist these small cost-sharing sponsors deal with their infrastructure problems and facilitate infusion of private capital into heretofore public projects.

We also support funding for the Continuing Authorities Program, including the Small Flood Control Projects Program, (Section 205 of the 1948 Flood Control Act, as amended) and the Emergency Streambank Stabilization Program, (Section 14 of the 1946 Flood control Act, as Amended). We want to express our appreciation for your

continued support of those programs.

Although the Small Flood Control Projects Program addresses flood problems which generally impact smaller communities and rural areas and would appear to benefit only those communities, the impact of those projects on economic development crossed county, regional, and sometimes state boundaries. The communities served by the program frequently do not have the funds or engineering expertise necessary to provide adequate flood damage reduction measures for their citizens. Continued flooding can have a devastating impact on community development and regional economic stability.

Likewise, the Emergency Streambank Stabilization Program provides quick response engineering design and construction to protect important local utilities, roads, and other public facilities in smaller urban and rural settings from damage due to streambank erosion. The protection afforded by this program helps insure that important roads, bridges, utilities and other public structures remain safe and useful. By providing small, affordable and relatively quickly constructed projects, these two programs enhance the lives of many by providing safe and stable living environments.

We request your continued support of the Flood Plain Management Services Program (Section 206 of the 1960 Flood Control Act) which authorizes the Corps of Engineers to use its technical expertise to provide guidance in flood plain management matters to all private, local, state and federal entities. The objective of the program is to support comprehensive flood plain management planning. The program is one of the most beneficial programs available for reducing flood losses. The program provides assistance to officials from cities, counties, states and Indian Tribes to ensure that new facilities are not built in areas prone to floods. Assistance is also provided on flood warning, flood proofing and other flood damage reduction measures. Critical flood plain information is also provided on a cost reimbursable basis to home owners, mortgage companies, realtors and others for use in flood plain awareness and flood insurance requirements.

We also request your continued support of the Planning Assistance to States Program (Section 22 of the 1974 Water Resources Development Act) which authorizes the Corps of Engineers to use its technical expertise in water and related land resource management to help States and Indian Tribes with their water resource problems. The program provides cost effective engineering expertise and support to communities on a variety of water and land resource issues. The program is used by many states to support their State Water Plans. As natural resources diminish, the need to manage them becomes more urgent. We urge your continued support of this program as it supports States and Indian Tribes in developing resource management plans which will benefit citizens for years to come.

On a related matter of grave importance to the Interstate Committee, we would respectfully request that during the reauthorization of the *Endangered Species Act*, the Congress should consider amending the Act to require the consideration of economic impacts in a decision to list a species as endangered or threatened as well as mandatory designation of critical habitat at the time the specie is listed, if critical habitat is to be considered. In addition we request that the Congress direct the Fish & Wildlife Service to develop procedures to objectively share information and specimens with parties that have a beneficiary interest in the listing process.

PREPARED STATEMENTS SUBMITTED REGARDING THE BOYD DETENTION
DAM ON THE TRINITY RIVER IN WISE COUNTY, TX

Senate

Subcommittee on Energy and Water Resources

Washington, D.C. 20515

Hon. Pete Domenici, Chairman

Dear Sir:

We are against building a Boyd dention dam on the trnty river in Wise County, Texas as recommended by the Corp of Engineers and the Trinity River Feasibility Study.

We went to Austin, Texas in the late fifties to oppose the Boyd Dention Dam. It was defeated at that time.

WHY HAS DALLAS-FT WORTH AND DALLAS AND TARRANT COUNTIES PERMITTED BUILDING IN THE FLOOD PLAINS SINCE THAT TIME.

We in Wise County should not have to pay for thier MISTAKES. We do not want to lose millions of dallors in tax base and revenues etc. so that Dallas-Ft.Worth can have a green area along the Trinity River.

These green areas could survive a few days of flooding without much damage. Water caught by a dention dam built in Wise county would stand for 30 to 90 days and would kill trees and all vaulable grasses in this 30,000 plus area.

Thousands of families have moved out of the FT Worth-Dallas metroplex to settle around Boyd,Paradise,Bridgeport vicinity. They moved out of bad invirements into good school districts and communities. A lot of them commute into the metroplex to work. they will have to drive many miles farther if this dam is built.

The Paradise school will be lost .

I was Postmaster in Paradise Texas from 1962 to 1989 and have seen the increase in our population. I am 69 now and was born and lived in Paradise and am retired here.

WE ASK YOU TO KILL THE BOYD DAM ALTERNATIVE BEFORE ANY FUTHER FUNDING IS MADE AVAILABLE TO THE TRINITY RIVER FEASIBILITY STUDY.

Sincerly,

Floyd Fuqua *Ruby Fuqua*

Floyd and Ruby Fuqua

P.O. Box 66

Paradise, Texas 76073-0066

Committee on Appropriations
Subcommittee on Energy and Water
Senate Dirksen Office Building-132
Washington, D.C. 20510

March 20, 1995

Re: Proposed Boyd Detention Structure Located Near Boyd, Wise County, Texas

Dear Senators

I am 51 years old. I was born in Bridgeport and have lived in Bridgeport all my life except for about a year when I was 4 years old. I grew up fishing and hunting. Therefore, I'm one of an ever shrinking group of people who know first hand of the situation concerning Lake Bridgeport and the West Fork of the Trinity.

I own an interest in a family farm which has been in our family for over 100 years. I and every other taxpayer in Wise County will have our taxes raised when the Boyd Detention Structure is built because of the massive devastation it will lay on Wise County.

It is morally wrong. It is ethically wrong. It is just plain wrong for Wise County to have to pay for the mistakes of others.

I have recently put together a composite US Geological Survey Map of the proposed Boyd Detention Structure on contour line 760.

I chose line 760 in order to match a US Army Corps of Engineers Map which is on contour line 760.

This highlighted US Geological Survey Map shows in shocking reality the shoreline of the proposed Boyd Detention Structure, or, if you will, the proposed Boyd Lake as it would be at 760 feet of elevation.

As can be seen, these two maps show the same configuration of the proposed Boyd Detention Structure on elevation contour line 760.

The US Army Corps of Engineers Map shows that the Guide Acquisition Line is 757. The spillway crest for this proposed structure is 754.

The maximum design water surface elevation is 776.7 (see exhibit 1).

The emergency services affected by the proposed Boyd Detention Structure, as illustrated on this US Geological Survey Map will be that

1. the response time for the Boyd, Bridgeport, and Decatur ambulances will be increased,
2. the response time for the Wise County Sheriff's Department will be increased,
3. the response time for the Texas Department of Public Safety will be increased,
4. mutual aid response time for fire departments will be increased,
5. the Bridgeport Police Department will be submerged,
6. the Bridgeport Fire Station will be submerged, and
7. the Paradise Fire Station will be flooded.

Some other major disruptions will be that

1. the Paradise ISD will be destroyed,
2. the Bridgeport ISD will be severely damaged,
3. the Boyd ISD will lose 10 to 12% of its district,
4. the Decatur ISD will lose a small part of its district,
5. the town of Paradise will be 50% flooded,
6. the City of Bridgeport will have 51 businesses flooded or submerged,
7. the Bridgeport City Hall will be flooded,
8. the Bridgeport sewer plant will be submerged,
9. the City of Bridgeport Shop and Warehouse will be flooded,
10. a large number of homes will be flooded or submerged,
11. the railroad will be closed or moved,
12. the Paradise TXI Sand and Gravel Plant will be flooded,
13. the gas plant on US 380 West of Bridgeport will be flooded,
14. the Bridgeport Industrial Park will be submerged,
15. the Bridgeport Chamber of Commerce Office will be submerged,
16. the Paradise Post Office will be flooded,
17. the Paradise First Baptist Church will be flooded,
18. the Paradise Church of Christ will be flooded,
19. the Flatwood Baptist Church will be flooded,
20. the Arkansas Cemetery will be flooded, and
21. the Bridgeport Cemetery West will be flooded.

The travel restrictions imposed will be that

1. US Highway 380 at the Trinity River will be closed,
2. US Highway 380 at Big Sandy will be closed,
3. Highway 51 South from Decatur will be closed,
4. Highway 114 from Bridgeport to Boyd will be closed,
5. FM 920 at the Trinity River will be closed,
6. FM 2123 at the Trinity River and East of Cottondale will be closed,
7. FM 3259 will be closed,
8. FM 1610 at Big Sandy will be questionable, and
9. FM 1658 at Village Creek will be questionable.

Earlier, I said the emergency response time would increase and I just said that all these highways would be closed. Let's explore this a minute.

If the highways are not raised,

1. emergency response time will indeed increase,
2. school bus routes will become longer for the affected districts,
3. it will take more time to go to church, to work, to the doctor, etc., and
4. law enforcement will be engaged in traffic control instead of crime control because the time of high water more of the county road network will be pressed into overtime service.

And, if the highways and bridges are raised, there are 6 river bridges, 2 major bridges on Big Sandy, and 2 major bridges on Garrett and Salt Creeks.

That is 10 major bridges, not to mention the smaller ones. Some of these bridges would have to be 50 or more feet high. Four and one-half miles of Highway 51 and several stretches of Highway 114, some of which 50 or more feet high and on and on.

How much would all this cost?

Coincidentally, the 4000 acres, proposed to be purchased (the remaining acreage is proposed to be leased for 80 days a year), can be flooded without putting any water on Highways 51 and 114. I'm willing to bet that the highways won't be raised. Only in time of major flooding would the complete highway network be shut down. This is after all a detention structure.

To put it another way, why should COG and the Corps of Engineers be concerned about Wise County travel being interrupted? None of this massive devastation seems to phase them. They just keep coming. This monster has been stalking Bond since the early 1960's.

Either way, though, we get the shaft. On the one hand, we get great inconvenience. On the other, more tax money is wasted on a project where there are proven cost effective alternatives which could be put in place, to wit:

1. small lakes on the tributaries of the West Fork above Lake Bridgeport,
2. levees along the Trinity through the Dallas-Fort Worth Metroplex, and
3. clearing out the West Fork between Lake Bridgeport and Lake Eagle Mountain.

None of these alternatives would require the wasteful and irresponsible use of the most valuable commodity in the world. Our land.

We lose either way on the railroad situation as well. If it is moved, we lose more land. If the railroad is closed, well you get the picture.

How much would it cost to acquire 35 or 40 miles of right of way and build a railroad bridge across the Trinity and countless creeks? Too much when proven and more practical alternatives exist.

The 114 bypass in Bridgeport from 12th street through Tidewater will be flooded. The City of Bridgeport will not only lose ad valorem tax revenue, but sales tax and utility revenue as well. Today there are 51 businesses and a large number of housing units in Bridgeport which would be flooded at contour line 760.

County roads and bridges, some of which cross the West Fork, will be submerged causing the county higher maintainance costs. And who pays for that?

The Bridgeport sewer plant will have to be moved. The only location available would be much higher than the present location. Would it be feasible? Is it an accepted practice to place a sewer plant on the high ground?

Bridgeport was a coal mining town at the turn of the century. Therefore, much of the city sits on coal mining tunnels and shafts. What effect would flood water have on this situation? What environmental issues would be present?

There are many oil and gas wells within this proposed structure. How much would this cost? What environmental issues would be present?

The Bridgeport water purification plant would be slightly flooded at the maximum design water surface elevation.

According to the chief appraiser for the Wise County Appraisal District, the estimated loss to the tax base would be \$100 million. The estimated loss in property tax revenues would be \$2 million (see exhibit 2).

The Wise Trinity Watershed Association estimates that the preliminary agriculture yearly production losses in the 757 easement area would be \$9,401,145 (see exhibit 3).

Several thousand acres of prime bottom land will be rendered useless.

Several thousand acres of timber will be lost.

Wildlife habitat will be destroyed.

A way of life which is disappearing all to fast will disappear even more.

With all this devastation, though, COG and the Corps of Engineers have the audacity to say that this project is cost effective.

I respectfully submit that COG and the Corps of Engineers don't have a clue as to what is cost effective.

If they did, they would be

1. building levees in the metroplex,
2. building small lakes on the tributaries of the West Fork above Lake Bridgeport, and
3. cleaning out the West Fork between Lake Bridgeport and Lake Eagle Mountain.

Action by the Tarrant County Water Control and Improvement District #1 to keep Lake Bridgeport 5 to 7 feet below the spillway would also be a big asset to control the flooding on the Trinity. After all, Lake Bridgeport was originally built for water storage and flood protection (see exhibit 4).

As can be seen on exhibit 4, Lake Bridgeport used to have a spillway elevation of 826 with a capacity of 484,000 acre feet of flood storage.

In the 1970's, the spillway elevation was raised to 836. The result was that the flood storage capacity was lost. This resulted in larger releases of water. These releases aggravated tremendously the natural ageing process of the West Fork to the point that many of the large trees which lined the West Fork are now in the bed of the river.

This allowed the banks to erode faster than they would have otherwise. Consequently, the West Fork below Lake Bridgeport has filled with silt and large trees to where it will only carry a fraction of the water it once carried.

Given its contributions to the flooding problems on the West Fork, I'm certainly not surprised that the Tarrant County Water Control and Improvement District #1 is a sponsor of the Trinity Study.

There are over 1000 square miles of drainage area above Lake Bridgeport (see exhibit 4).

There will be 1703 square miles of drainage area above the Boyd Detention Structure (see exhibit 1).

Therefore, there is almost two-thirds of the drainage area of the proposed Boyd Detention Structure outside the area serviced by the North Central Texas Council of Governments in Arlington where Mr. Gary Skaggs is chairman of the Trinity River Corridor Steering Committee.

Mr. Skaggs is scheduled to testify at Congressional hearings on March 23, 1995 before the House and Senate appropriations subcommittees on water resource development (see exhibit 5).

How can the NCTCOG in Arlington solve the problem of the flooding on the West Fork when the problem lies upstream from its 16 county area?

I respectfully submit that the place to control the flood water on the West Fork is at its source in Archer, Clay, and Jack Counties above Lake Bridgeport. Water also reaches the West Fork from Montague County.

These counties are in the area serviced by the COG office in Wichita Falls, Texas.

The whole problem with this proposed Boyd Detention Structure is that COG in Arlington and the Corps of Engineers are attempting to solve a division problem using multiplication.

The solution is

1. small lakes on the tributaries of the West Fork above Lake Bridgeport,
2. hold Lake Bridgeport a few feet below its spillway,
3. clean out the West Fork below Lake Bridgeport, and
4. build levees in the metroplex.

The Trinity Study, as it should, emphasizes the beautification of the Trinity. The Boyd Detention Structure will lay waste to some 20 or so miles of the West Fork.

What do beautification and the total devastation of 20 or so miles of the West Fork have in common?

We in Wise County need the Boyd Detention Structure cancelled forever so we don't have to worry about this monster anymore. Thirty-five years is long enough.

America needs the Boyd Detention Structure cancelled because America's \$1 billion can be much better utilized on the cost effective proven alternatives listed above. The remainder of America's \$1 billion could then be spent on other problems.

Please pass this very important matter on to your fellow senators, be they Democrat or Republican, because this affects us all. This type of precedent has no place in our form of government.

Please understand that the enormity of the Boyd Detention Structure has dictated the length of this letter.

If I can be of further assistance, please advise. My phone number is 817-683-4785.

Respectfully yours

Gerald Wayne Groves

Gerald Wayne Groves
802 Stevens
Bridgeport, Texas 76426

Wise County, Texas

March 17, 1995

RE: Boyd Dentention Dam

I, as a citizen of Wise County, strongly object to the U.S. Army Corps of Engineers and the North Central Texas Council of Governments proposed Boyd Detention Dam alternative because:

- The loss of our economy.
- The loss of a large part of our tax base - over one hundred million dollars.
- The loss of approximately 40,000 acres of prime agriculture land - and agriculture income of ten million dollars a year.
- Four hundred homes and the lives of the inhabitants would be adversely affected.
- Major environmental damage - endangered species would become extinct, and hardwood forest destroyed.
- Wise County is a major producer of oil and gas, sand, rock and gravel. These industries would suffer major losses as well as the loss of income from these products to the land owners in Wise County.
- Major relocation of state and county roads, railroads, utilities and pipelines.
- I also have serious questions about the "revised" cost/benefit analysis data recently released by the North Central Texas Council of Governments. We want a detailed cost/benefit analysis included in the study.
- The loss of schools - one school district would be non-existent and another greatly affected.
- The loss of historical record - a part of Texas History would be eliminated.

Another alternative must be found. The benefit of some at the expense of others is not the answer. We ask for your help.

Yours very truly,

George W. Groves

Wise County, Texas

March 17, 1995

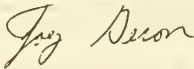
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- * The loss of our economy.
- * The loss of a large part of our tax base - over one hundred million dollars.
- * The loss of approximately 40,000 acres of prime agriculture land - and agriculture income of ten million dollars a year.
- * Four hundred homes and the lives of the inhabitants would be adversely affected.
- * Major environmental damage - endangered species would become extinct, and hardwood forest destroyed.
- * Wise County is a major producer of oil and gas, sand, rock and gravel. These industries would suffer major losses as well as the loss of income from these products to the land owners in Wise County.
- * Major relocation of state and county roads, railroads, utilities and pipelines.
- * I also have serious questions about the "revised" cost/benefit analysis data recently released by the North Central Texas Council of Governments. We want a detailed cost/benefit analysis included in the study.
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Yours very truly,



Wise County, Texas

March 17, 1995

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I, as a citizen of Wise County, strongly object to the U.S. Army Corps of Engineers and the North Central Texas Council of Governments proposed Boyd Detention Dam alternative because:

- * The loss of our economy.
- * The loss of a large part of our tax base - over one hundred million dollars.
- * The loss of approximately 40,000 acres of prime agriculture land - and agriculture income of ten million dollars a year.
- * Four hundred homes and the lives of the inhabitants would be adversely affected.
- * Major environmental damage - endangered species would become extinct, and hardwood forest destroyed.

- Wise County is a major producer of oil and gas, sand, rock and gravel. These industries would suffer major losses as well as the loss of income from these products to the land owners in Wise County.
- Major relocation of state and county roads, railroads, utilities and pipelines.
- I also have serious questions about the "revised" cost/benefit analysis data recently released by the North Central Texas Council of Governments. We want a detailed cost/benefit analysis included in the study.
- The loss of schools - one school district would be non-existent and another greatly affected.
- The loss of historical record - a part of Texas History would be eliminated.

Another alternative must be found. The benefit of some at the expense of others is not the answer. We ask for your help.

Yours very truly,

Jim Brown

Wise County, Texas

March 17, 1995

RE: Boyd Detention Dam

I, as a citizen of Wise County, strongly object to the U.S. Army Corps of Engineers and the North Central Texas Council of Governments proposed Boyd Detention Dam alternative because:

- The loss of our economy.
- The loss of a large part of our tax base - over one hundred million dollars.
- The loss of approximately 40,000 acres of prime agriculture land - and agriculture income of ten million dollars a year.
- Four hundred homes and the lives of the inhabitants would be adversely affected.
- Major environmental damage - endangered species would become extinct, and hardwood forest destroyed.
- Wise County is a major producer of oil and gas, sand, rock and gravel. These industries would suffer major losses as well as the loss of income from these products to the land owners in Wise County.
- Major relocation of state and county roads, railroads, utilities and pipelines.
- I also have serious questions about the "revised" cost/benefit analysis data recently released by the North Central Texas Council of Governments. We want a detailed cost/benefit analysis included in the study.
- The loss of schools - one school district would be non-existent and another greatly affected.
- The loss of historical record - a part of Texas History would be eliminated.

Another alternative must be found. The benefit of some at the expense of others is not the answer. We ask for your help.

Yours very truly,

Diana Anderson

The Honorable Pete Domenici
Senate Subcommittee on Energy and Water Resources
Washington, DC 20510

March 23, 1995

Dear Chairman Domenici:

The citizens of Wise County strongly object to the U. S. Army Corps of Engineers and the North Central Texas of Governments proposed Boyd Detention Dam because:

- The loss of our economy.
- The loss of a large part of our tax base - over one hundred million dollars.
- The loss of approximately 40,000 acres of prime agricultural land - and agricultural income of ten million dollars per year.
- Hundreds of homes and the lives of the inhabitants would be adversely affected.
- Major environmental damage - endangered species would become extinct, hardwood forests destroyed, as well as wildlife habitats and migration grounds.
- Wise County is a major producer of oil and gas, sand, rock and gravel. Those industries would suffer major losses as well the loss of income from these products to the land owners in Wise County.
- Major relocation of state and county roads, railroads, utilities and pipelines.
- We citizens also have serious questions about the "revised" cost/benefit analysis data recently released by the North Central Texas Council of Governments. We want a detailed cost/benefit analysis included in the study.

An alternative to this dam proposal would be the construction of several smaller conservation dams on tributaries to the Trinity River which lay upstream from the proposed area.

Frankly speaking, the citizens of Wise County question the intent of this ill conceived project as it relates to irresponsible development of the flood plain in Fort Worth and Dallas. Why should the good citizens of Wise County suffer the ill effects of imprudent development in the Fort Worth and Dallas metropolitan area?

We ask for your help in quashing this irresponsible project.

Yours very truly,


Allen L. Arnold

Senate Subcommittee on Energy and Water Resources
House Subcommittee on Energy and Water Resources
Washington, D. C. 20515

March 15, 1995

Senator or Representative:

On March 23, your subcommittee on Energy and Water Resources will be having hearings about the Trinity River Feasibility Study in Texas. You will be hearing Gary Skaggs, Executive Chairman of the Upper Trinity River Feasibility Study from Texas. He will be wanting more funding for a project called "Boyd Dam Alternative." **DON'T GIVE IT TO HIM.** This project is only going to hurt innocent people in the area of Wise County, Texas. The project will do this to Wise County:

1. The loss of our economy.
2. The loss of a large part of our tax base—over \$100 million dollars.

3. The loss of 40,000 acres of prime agriculture land—and agriculture income of \$10 million dollars a year.
4. 1000 homes and the lives of the inhabitants would be adversely affected.
5. Major environmental damage—endangered species would become extinct, and hard wood forests destroyed.
6. Wise County is a major producer of oil and gas, sand, rock and gravel. These industries would suffer major losses as well as the loss of income from these products to the land owners in Wise County.
7. Major relocation of state and county roads, railroads, utilities and pipelines.
8. We citizens also have serious questions about the "revised" cost/benefit analysis data recently released by the North Central Council of Governments. Their figure of \$300 million dollars would not even begin to pay us for our land. Our figure for the cost of the project is closer to \$1 billion dollars!!! Does the government REALLY have the money for this funding?? I doubt it.

Also, smaller projects such as levies could be built in the flooding area and innocent hard working Americans would not have to suffer at the hands big government. Government is of the people, by the people and for the people. You are suppose to help the people you serve, not hurt them. I hope you will remember this when funding for this project is asked for. **Please kill the Boyd Dam Alternative now.**

Sincerely,

Ruth & A.W. Holden
P.O. Box 205
Paradise, W. Va. 76073

March 13, 1995

Dear Sir,

I would like to ask you to kill the Boyd dam Alternatives before any further funding is made available to the Kinship River Feasibility study. It will be a great loss of economy, environmental damage, loss of (that has) loss of homes and (likelihood) for this county. When I first heard of this, I couldn't believe the government could do this in America. It's one thing to buy your land for a lake. After to realize it useless, to sell, farm or raise cattle without paying you.

is just unamerican.! Miss Gandy has been in our family for over a hundred years and to think about it just being made into a swamp land is something else! Ft. Worth & Dallas developers created this problem in their cities, let them make the sacrifices!

Thank You
 Ted & Erica Lee Dille

RESOLUTION NO. 95-3

LET IT BE KNOWN TO ANY AND ALL; THAT, THE CITY COUNCIL OF THE CITY OF BRIDGEPORT, WISE COUNTY, TEXAS DO HEREBY JOINTLY AND INDIVIDUALLY OPPOSE THE CONSTRUCTION OF THE STRUCTURAL FLOOD CONTROL DEVICE PROPOSED TO BE ERECTED NEAR THE CITY OF BOYD, WISE COUNTY, TEXAS, AND COMMONLY KNOWN AS BOYD DETENTION DAM.

WHEREAS, the North Central Texas Council of Governments, the Trinity River Corridor Steering Committee and the officials serving thereon, the Tarrant County Water Control and Improvement District Number 1, the Trinity River Authority, the U.S. Army Corps of Engineers have met and have adopted a feasibility study identified as "Common Vision"; and

WHEREAS, no official of Wise County, Texas, was shown the courtesy of being invited to attend, consulted, asked for advise or technical assistance prior to the adoption of "Common Vision"; and

WHEREAS, Wise County, Texas did receive a grant number 92-483-326 from Texas Water Development Board for flood protection study on the West Fork of the Trinity River above Eagle Mountain Lake; and

WHEREAS, upon completion of said study, the documents were made public and a copy was hand delivered to the U.S. Corps of Engineers; and

WHEREAS, nothing incorporated in the \$200,000 aforementioned study was placed into the "Common Vision" or the Corps of Engineer's studies despite the fact that upon implementation, silt and flood control would be achieved without the construction of Boyd Detention Dam; and

WHEREAS, the "Common Vision" study and any prepared by the U.S. Corps of Engineers have shown no regard for the several other types of impacts on Wise County, Texas and the City of Bridgeport; and

WHEREAS, the flooding of some 40,000 acres of land in Wise County, Texas, would constitute a loss of 900 homes, 9.4 million dollars annual loss of agricultural income, annual property tax

loss of two million dollars and a loss in the tax base of 100 million dollars to the County, Bridgeport and Paradise School District; and

WHEREAS, the ecological loss of the native wild animals the migratory fowls and the effect on American Bald Eagle, the Great Blue Heron, the Sandhill Crane, the Canadian Geese and the endangered species of Velvet Tail Rattlesnake was obviously not considered in any impact study; and

WHEREAS, the environmental loss of thousands of hardwood, pecan and the rare Shittim tree (the wood of the Ark) that are hundreds of years old would be lost by flooding from the detention structure; and

WHEREAS, the eventual inundation of the U.S., State and Farm to Market Highways and Roads would disrupt routine traffic of passenger vehicles, commercial haulers (a vital part of the county economy) school busses and would cause great harm and endanger citizens lives by the inability of law enforcement and emergency service vehicles to respond in quick order when called upon; and

WHEREAS, the loss to the Citizens of Bridgeport who will temporarily or permanently lose their jobs when the high water closes the 51 businesses that will be flooded; and

WHEREAS, some 460 persons, which is 10% of the City's population, will be forced to relocate when their homes are flooded caused by the Boyd Detention Dam; and

WHEREAS, the City of Bridgeport will lose millions of dollars in revenues from the negative effect on ad valorem, sales taxes collectibles and revenues not received from water, sewer and electrical usage; and

WHEREAS, the City of Bridgeport will suffer hundreds of millions of dollars in damages when water floods the new wastewater treatment plant, Police Department, 10th Street sewer lift station, six bay fire station, public works shop and warehouse building, 24 acre City Park, swimming pool; and

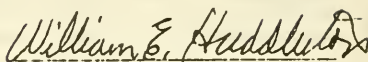
WHEREAS, the damages to the West Fork of the Trinity River and tributaries caused from the contamination of raw sewage and the possible infiltration of same into the City's potable water is immeasurable; and

WHEREAS, an encroachment and abolition of the sacred right of ownership and the right to pursue gainful employment in the locale of ones choosing would be created by entities who would attempt to solve the problems created by those same entities at the expense of City of Bridgeport, Texas and Wise County, Texas

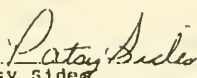
NOW, THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BRIDGEPORT, WISE COUNTY, TEXAS, that said Council will use all of it's influence and energy to properly represent the Citizens of Bridgeport, Texas in vigorously opposing the construction of the Boyd Detention Dam which we consider ill conceived, poorly planned and a detriment to our very livelihood and do further request that our State and Federal elected officials join us in opposing this proposal that would, upon completion, help other entities and bring devastation on us.

PASSED AND ADOPTED This 21 day of March, 1995.

CITY OF BRIDGEPORT


 William E. Huddleston
 Mayor Pro-Tem

ATTEST


 Patsy Sides
 City Secretary

March 20, 1995

Mr. Pete Domencici
 Washington, D.C. 20510

Via Telefax

Dear Mr. Domencici:

This letter is written to urge you to vote against the "Boyd Dam Alternative" before any further funding is made available to the Upper Trinity River Feasibility Study. This study is the subject of hearings beginning March 23, 1995 before House and Senate subcommittees on Energy and Water Resource Development.

In short, the Dallas/Fort Worth area has mismanaged and overdeveloped flood plain areas along the Trinity River. One alternative offered by the Corps of Engineers is to build a "dry lake" in neighboring rural Wise County. This plan requires the flooding of 34,000 acres of prime ranching and agricultural land, known as the "Boyd Dam Alternative". This proposal is economically and ethically unsound, and should be shelved indefinitely.

If this proposal is advanced, the Wise County economy would be devastated. Over two hundred and fifty (250) producing oil and gas wells would be capped permanently resulting in loss of revenue for landowners, the oil and gas industry (the major employer in the area) and the local property tax base.

Further, the estimated loss in agricultural products would exceed twenty million dollars (\$20,000,000.00) annually. Wise County boasts some of North Texas' finest agricultural and ranching products including cattle, dairy products, peanuts, pecans, beans and watermelon. One local school district (Paradise) and possibly another (Bridgeport) face tremendous economic loss from the depreciated tax base. This will bring about closure and/or forced consolidation. The federal governmental will raise the highways in Wise County above the "flood line", which leaves Wise County taxpayers to pay for elevating the County roads, or risk loss of police, fire and school services.

Property values will also plummet in Wise County. My family has owned a 250 acre farm in Wise County for five generations. This is presently valued at \$1,200.00 an acre, and has been actively leased for agricultural, livestock and mineral purposes for more than fifty years. If the Boyd Dam Alternative is adopted the land can only be "leased" by the Corps of Engineers for flooding purposes and will render the paltry sum of seven dollars and fifty

cents (\$7.50) an acre annually. This will render our farm worthless and unmarketable at any price and will shut-in the producing oil and gas wells that are my parents' primary source of income in their retirement years. Many other Wise County landowners and voters, including numerous elderly fixed-income retirees, face this identical economic tragedy if the Boyd Dam becomes a reality. The Boyd Dam Alternative would result in tremendous loss of homes, ranches, oil and gas wells, jobs and family-owned farms. Why should innocent farmers and landowners be economically devastated by the mismanagement and overzealousness of Dallas/Fort Worth land developers?

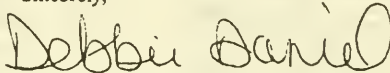
The ecological impact which would accompany the Boyd Dam is tremendous. Stubble resulting from Wise County agricultural products is a major source of wildlife sustenance. The Dam proposal would deplete the food supply, disturbs migratory bird patterns and would kill one of the few hardwood forests left, and its wildlife. We anticipate you will be hearing from several environmental groups which oppose the Boyd Dam for these reasons, including the Audubon Society and the Sierra Club.

Last, the Corps of Engineers concluded that the cost of the Boyd Dam Alternative is \$300 million. This estimate, we believe is very questionable. It is reminiscent of the Super Collider Project in our area, resulting in millions of wasted dollars because of inefficient cost estimates. Please examine the Corps of Engineer's numbers carefully.

I am enclosing an editorial column which states our position best: "Wise County does not exist for the benefit of the Metroplex...The Corps of Engineers should forget the Wise County dam and develop alternatives closer to home."

Thank you for your anticipated support to oppose the Boyd Dam Alternative.

Sincerely,

A handwritten signature in cursive script that reads "Debbie Daniel". The signature is written in dark ink and is positioned above the printed name.

DEBBIE DANIEL

Don't push our problem on neighbors

Ron Wright

The good people of Wise County should not be penalized for the stupidity of developers and urban planners in the Metroplex. The problems of overdevelopment and irresponsible development near the Trinity River and its associated lakes and tributaries should be solved where the problems are created: Tarrant and Dallas counties.

A U.S. Army Corps of Engineers study released last month in a chorus of hosannas in Dallas and Fort Worth states that nearly 100 Trinity River projects may be eligible for federal funding, including urban riverfront plans and the greenway along the Trinity that could greatly enhance Arlington's river parks system.

The corps' study began five years ago, after U.S. satellites revealed how rapid urbanization and unchecked growth had choked the Trinity River flood plain since the mid-1980s, producing increased flood risks. The study concludes that \$467 million is warranted for nine flood-control projects along the river; this would control the kind of flooding that the area experienced in 1989-91. A plan being developed by the corps and supported enthusiastically by Metroplex leaders would allow dreams of riverfront parks and commercial ventures to finally be realized.

It sounds like a great plan. The only problem is that the people who would benefit the least from the plan are the ones who would sacrifice the most: the people of Wise County. The corps' plan has them as mad as hornets, and rightfully so. Their property rights would be trampled.

a three-mile dam costing \$300 million that would be built in Wise County near Boyd to contain floodwaters north of Eagle Mountain Lake on the Trinity's West Fork. The dam would flood up to 34,000 acres of farm and ranch land in our neighboring county, but only 400 acres on which to construct the dam would actually be purchased.

The water would be contained only for a short period of time — about 80 days per year. It then would be released slowly downstream. This would not be a new recreational reservoir that residents of the county could develop and enjoy. Rather, it would be what proponents refer to as a "dry lake." When I was growing up, we called them swamps.

Although water would collect only temporarily in this swamp, it would be long enough to kill most of the hardwood trees and render the land worthless to the farmers and ranchers who own it. Most of the 80-plus days in which the dam would contain water would occur during the growing season — no small concern to people who make a living from agriculture.

Wise County commissioners have already voted to oppose the dam. The Wise County Appraisal District estimates that it would cost \$2 million in lost property tax revenue annually. The annual loss in agricultural income is estimated at \$9.4 million.

The issue pits the interests of urban dwellers against those of their rural neighbors. Caught in the crossfire is the Corps of Engineers, which was given the charge by Congress to identify cost-effective solutions that would negatively affect the least amount of people.

The final solution necessarily will be a political one. People in the Metroplex have power and money on their side, but Wise County residents have right on theirs. And principle still matters in political settlements.

We in the Metroplex, and our political leaders in particular, should think beyond our own city and county boundaries and consider the difficulties that this plan poses for others. Wise County does not exist for the benefit of the Metroplex. The residents of Wise County were not looking for a fight and did not create the problems that precipitated this one.

The problems were created in Tarrant and Dallas counties. This is where solutions should be effected and sacrifices made to control flooding in our neighborhoods.

The Corps of Engineers should for-

If You Live in Wise County this will affect you.

A PETITION BY THE WISE TRINITY WATERSHED ASSOCIATION

Against the Boyd dam alternative included in the Upper Trinity Feasibility Study.

We the undersigned oppose the Boyd detention structure, to be located two miles west of Boyd, Texas and involving approximately thirty thousand acres of western Wise County, for the following reasons:

- 1) The severe economic damage to Wise County.
- 2) The loss of tax base.
- 3) The environmental damage.
- 4) The loss of homes and livelihoods.
- 5) The questionable cost of the project.
- 6) The questionable down stream benefits.
- 7) The inability of the metroplex to control flood plain development.
- 8) A lack of pertinent information regarding the alternative.

NAME	ADDRESS	CITY/ZIP	VOTER ID#
1 DONALD G. HAMMOND	200 COUNTY RD	BOYD TX 76023	
2 Cassie Youngblood	P.O. Box 1001	Bridgeport, TX 76126	
3 Ancel Redder	P.O. Box 655	Decatur TX 76234	
4 BOBBY MILLES	Rt. #1 Box 7F-2	Rhome, TX 76078	
5 LARRY DAVIS	RT 2 BOX 112	BRIDGEPORT TX	
6 Paulette Burkhalter	112 Gentry Ct.	Paradise, TX 76073	
7 James W. Hurst	P.O. 606 Alwood	ALWOOD 76255	
8 Clyde Idell	Rt 1 Box 72	Rhome 76078	
9 Janxita Idell	"	"	
10 Jerry Cooper	304 Maston	Boyd 76023	
11 Ray Hotacker	Rt. 1 Box 67	Rhome, TX 76078	
12 Paul Touce	Rt 1 Box 32B	Newark TX 76071	
13 Ray Blackwell	500 W Hobbs	Boyd	
14 Christie Judge	Rt 1 Box 56	Rhome 76078	
15 Eva Pick Judd	"	"	
16 Gene Judd	Rt 1 Box 32B	Newark	
17 Mary Blackwell	500 W. Hobbs	Boyd	
1 Beverly Shubbs	P.O. Box 311	Boyd, TX 76023	22458
2 Anie Mutho	P.O. Box 311	Boyd, TX 76023	29509
3 Carol Jordan	Rt 2 Box 135	Boyd TX 76023	
4 Bob Kaul	Rt 5 Box 320	Decatur TX	19951

NAME	ADDRESS	CITY/ZIP	VOTER ID#
5	Russie Haugle Rt 5 Box 370	Decatur	TX 76234
6	Guyll Duvall Rt #2 Box 232	Decatur TX	76234
7	Goy Wells Rt 1 Box 369-4	Bridgeport TX	"26241"
8	Wendy McAlley Rt. 1, Box 26A	Bay, IL	76023
9	A. Smith Box 626	Decatur	76234
10	Wanda Howard 603 W. Lady	Decatur Jr.	76234
11	Terry L. King P.O. Box 74	Paradise Tx	76073
12	Rona Ward Rt 1 Box 219A	Bridgeport, Tx	76426
13	Lois Dallas P.O. Box 972	Bridgeport TX	76426
14	Shyllia W. O'Byrne P.O. 2 Box 539	Paradise TX	76073
15	Lou Ann Cate Rt 4 Box 17	Decatur, TX	76234
16	Brenda Lombardo Rt 2 Box 600	Paradise TX	76073
17	Minna Lawrence 9302 Cobb	Bridgeport	
1	Theresa R. Taylor P.O. Box 66	Paradise TX	76073
2	Subj Taylor 11316	Paradise TX	76073
3	Noland Rumble Rt 2 Box 123	Chico TX	76431
4	Cheryl Hoover Rt 1, Box 57	Paradise	76073
5	Jenny Hoover Rt 1 Box 57	Paradise TX	76073
6	Charles W. Harris P.O. Box 580	Decatur TX	76234
7	Jimmie Lammie 1506 S. College	Decatur TX	76234
8	David Z. Hubert Rt 5, Box 243	Decatur, TX	76234
9	Caroten Taylor Box 6 Box 1	Decatur	76023
10	Martin R. Davis Jr Rt 2 Box 31	Boyl TX	76023
11	D. S. Marchewer Rt 3 Box 133	Decatur TX	76234
12	Jelen Meehan -	Bridgeport	76426
13	Oprius Bunket	Chico	76431
14	One Day Stewart	Decatur	76234
15	Don J. Williams	Decatur, TX	Box 280 - 76234
16	Brenda Hubert Rt 2 Box 351	Decatur TX	76234
17	Nell Coffman Rt 2 Box 535	A Decatur TX	
18	Wing King 4045582	Boyl TX	76426
19	Angel Hagar Rt. 1, Box 539	Rock Island Bay, TX	76023
20	Marilyn W. Miller	P.O. Box 373	Decatur TX
21	Billy Cole Rt 3 Box 634	Decatur TX	76234
22	Vicky Bayan Rt. 1 Box 37	Bridgeport, TX	76426
23	Sandra Bonds Bounds 989 Indian Tr.	Decatur TX.	76234

NAME	ADDRESS	CITY/ZIP	VOTER ID#
1 Maria Hicks	Rt 2 Box 642	Decatur, Tx	76234
2 Anna & Edgie	Rt 2 Box 218	Boyd, Tx	76023
3 Craig Tinsdale	Rt 1 Box 196E	CHICO (7643)	
4 Jed Reed			
5 Pat Reed			
6 Balbin Ashley			
7 Conrad Cindy Peña	P.O. Box 54	Boyd, TX	76023
8 Joyce Tolbert	Rt. 6, Box 75	Decatur, TX	76234
9 Carol McCraw	Rt 2, Box 210D	Paradise, Tx	76073
10 Gene Paton	204 Hwy 637	Decatur, TX	76234
11 Lema Collins	281 James St.	Decatur, TX	76234
12 GARY S. GRUBBS	P.O. Box 211	Boyd 76025	4103
13 David M. Masten	Box 535	Decatur	
14 Bobbi Baker	13045 Cliff	Decatur	
15 Rick McMasters	Rt 1 Box 301	Decatur	
16 Mary M. Masten	P.O. Box 64	Decatur	
17 John McMasters	Rt 3 Box 422	Decatur	
18 James McMasters	Rt 1 Box 127A	Decatur	
19 Bob Youngblood	Rt 1	Newark, TX	
20 Chris Stevens	405 Brookhollow	Decatur, TX	
21 John Mares	Rt 2 Box 12	Decatur, TX	
22 Cheri Huddell	Rt 2 Box 101	Decatur, TX	
23 David Stout	Rt 1	Whion, TX	
24 Rosa Harris	405 Brookhollow	Decatur, TX	
25 Patricia Griffin	Rt 2 Box 84-A	Boyd, TX	
26 Eric Eric Howell	Chico	Eric Howell	
27 W. J. Peterson	Rt 6 Box 35N	Decatur, TX	
28 Fran Standen	Rt 2 Box 235	Boyd, Tx	
29 Glenn Harris	P.O. Box 652	Dodgeport, TX	76426
30 Long Stewart	209 Seaton	Decatur, TX	76234
31 Deborah Gundersen	P.O. Box 1473	Boyd, Tx	76023
32 Belli McKitt	Rt 1 Box 29	Paradise, Tx	76073
33 Carl Jackett	Rt 1 Box 29	Paradise, Tx	76073
34 Diare Culpepper	Rt 2 Box 322	Decatur, TX	76234
35 Robert Demas	Rt 3 Box 156-CC	Boyd, Tx	76023
36 Keisti Christenson	Rt 2 Box 348	Decatur, Tx	76234

NAME	ADDRESS	CITY/ZIP	VOTER ID#
9	Flannette Davidson PO Box 1354	Boyd, Tx 76023	
10	Monna Hankins PO Box 352	Boyd TX 76023	
11	Sherril Taylor PO Box 711	Boyd Tx 76023	
12	Sheril Tidwell 6015 Allen	Boyd, TX 76023	
13	Cheryl Abrahams PO Box 66	Boyd TX 76023	
14	David Taylor PO Box 711	Boyd TX 76023	
15	John Dunnell 6015 Allen	Boyd TX 76023	
16	Allyson Dymondson P.O. Box 1554	Boyd TX 76023	
17	Usha Gungu 206 S. 15th	Boyd TX 76023	
1	Connie Wilson 7035 Miller	Decatur 76234	
2	Litha Moss 701 E Hale	Decatur Texas	
3	STEPHEN HUNT 503 W. MAIN	DECATUR, TX 76234	
4	Kenneth H. Maxum Rt 2 Box 261	Paradise Tex 76073	
5	Pat North Rt 2 Box 237	Decatur TX 76234	
6	Clara M. Daffay Rt 1 Box 325	Boyd Tx 76023	
7	Damon Lester Rt 2 box 382	Decatur, TX	
8	Tanya Lobough Rt 2 Box 363	Decatur, Tx 76234	
9	Michael Christensen Rt 2 Box 342	Decatur Tx 76234	
10	Barbara Hightower 730 Box 442	Boyd Tx 76023	
11	Marcy Davis PO Box 40	Child, Tx 76431	
12	Julie Detry PO Box 81	Boyd TX 76023	
13	Mark Detry PO Box 81X	Boyd TX 76023	
14	Juanita Green Box 278	Alvord 76025	
15	Shirley Casner Rt 2 Box 819	Paradise TX 76073	
16	Henry Boyer 408 Ivory St	Boyd TX	
17	Ed Mackdoug DTM Cop at Decatur, TX	76234	
1	Yanny Jarow Rt 1 Box 115 AB	(817) 638-5034	
2	Loyce Brown RT 1 Box 420	Alvord 76225	
3	Karen Martin RT 1 Box 61-5	Alvord 76225	
4	Charlotte Newsome 50 Almond Rd	Paradise TX 76073	
5	Julie d. Phillips P.O. Box 708	Child Tx 76431	
6	Francis L. Chene Rt 1 Box 6100	Decatur TX 76234 (Flotwood)	
7	Linda Brown Rt 1 Box 61 EF	Decatur Tx 76234	
8	Margaret Fischer Rt 1 Box 61 B	Decatur TX 76234	
9	Pennie Flether Rt 1 Box 61 ec	Decatur TX 76234	
10	Steven Fischer Rt 1 Box 61 c	Decatur TX 76234	

- | A. | NAME | ADDRESS | CITY/ZIP | VOTER ID# |
|----|--------------------|---------------------|----------------|-------------|
| 1 | Wm. H. Wilson | Rt. 1, Box 86 | Decatur, Tx. | 76234 |
| 2 | Gerry Phillips | Rt. 1 Box 137 | Chico Tx | 76231 |
| 3 | Gennifer Haney | Rt. 1 Box 51 | Decatur Tx | 76232 |
| 4 | Willa Wilson | Rt. 1 Box 51 | Decatur Tx | 76234 |
| 5 | Lorie Dodd | Rt. 1 | Chico Tx | 76431 |
| 6 | Simmie Dodd | Rt. 1 | Chico Tx | 76431 |
| 7 | Asucena Delgado | Rt. 1 | Chico Tx | 76431 |
| 8 | Alma Woods | 7110 28th | NEAR | |
| 9 | Barbara Elliott | 208 Runaway Bay | Runaway Bay | |
| 10 | Barbara | Box 57 | Bridgeport | |
| 11 | Avery Erwin | Rt 2 Box 819 | Paradise Tx | 76078 |
| 12 | Marian Rainey | P.O. Box 515 | Bridgeport Tx | 76426 |
| 13 | Jerry Elliott | Box 394 | Box 475 | 76023 |
| 14 | Patricia Miller | Rt 5 Box 417 | Decatur, Texas | |
| 15 | Jimmy | Isbell Rt 1 Box 607 | Newark Tx | 7607 |
| 16 | Mary Isbell | Rt 1 Box 607 | Newark Tex | 76071 |
| 17 | Terry Sperting | Rt 1 Box 71 | Newark Tx | 76071 |
| 18 | Dave Sperting | Rt 1 Box 71 | Newark Tx | 76071 |
| 19 | Correne Travis | | | |
| 20 | Sheila Holt | Rt. 1 Box 182-6 | Rhame | 76078 |
| 21 | Chelle Ship | Rt 3 Box 402 | Rhame | 76078 |
| 22 | Bill Ship | P.O. 402 | Rhame TX | 76078 |
| 23 | Barbara Holt | Rt 1 Box 182-6 | Rhame Tx | 76078 |
| 24 | Frankie Jackson | | Rhame, Tx | |
| 25 | William June | Rt 1 Box 138-10 | Bridgeport Tx | |
| 26 | Christy Woodall | Rt 2 Box 158 | Boyd Tx | 76023 |
| 27 | Terry Wood | Box 307 | Decatur Tx | 76225 |
| 28 | Kathy Maddux | Box 254 | Alwood, Tx | 76225 |
| 29 | Mary Potts | Rt 2 Box 906 | Paradise Texas | 76073 |
| 30 | Dorothy Armstrong | Rt 1 Box 7 | Bridgeport, Tx | 76426 |
| 31 | Paralee Brady | Rt 2 Box 162 | Boyd | 76023 23908 |
| 32 | Nurse Orey | Rt. 1 Box 369 | Alwood Tx | 76225 |
| 33 | Lee Hughes | Rt. 4 Box 1030 | Decatur, Tx. | 76234 |
| 34 | John Light | Rt. 4 Box 1030 | Decatur, Tx. | 76234 |
| 35 | Dudy Matthews | 610 E. Sherman | Decatur, TX | 76234 |
| 36 | Marthella McNewell | Rt 1 Box 26-I | Rhame, TX | 76078 |

- 13 Sandy K. Schmidt Rt. 1 Box 2617C Bridgeport, TX 764
- 14 Judy Culver Rt 2 Box 158A. Boyd. Tx 76023
- 15 Adie Warner 366 Cato Bridgeport Tex 76426
- 16 Lisa Wynn Rt 1 Box 148 Decatur Tx 76234
- 17 Scott Perkins 100 Valley Ridge Decatur Tx 76234
- 1 Melissa Crawley P.O. Box 1006 Hlword Tx 76225
- 2 Ralph B. Holt Jr. 808 W. Main St. Decatur, 76234
- 3 Clint A. Holt 808 W. Main St. Decatur Tx 76234
- 4 Tracy & Forester P.O. Box 272 Rhoads, Tx. 76078
- 5 Brian K. Crawley Rt. Box 606 Aword TX 76025
- 6 Stephen M. Tackett P.O. Box 96 Newark, Tx. 76071
- 7 Connie Tackett P.O. Box 96 Newark, Tx. 76071
- 8 Shirley Tackett P. Box 96 Newark Tx 76071
- 9 Mammill C. Peltzade P. Box 94 Paradise Tex 76073
- 10 Arnie Jackson Rt. 1 Box 178A Rhoads, Tx 76078
- 11 Jerry Jones 3855 Schwarty Over Fort Worth
- 12 Pauline Wood P.O. Box 1158 Rhoads, Tex 76078
- 1 Ester Tackett Rt 1 Box 97. Decatur 76234 23655
- 2 Siena Marion Tackett Rt 1 Box 97 Decatur 76234 23656
- 3 Wesley M. Hanger Rt. Box 96 Decatur 76234
- 4 Wesley M. Hanger Rt. 1 Box 95 H Decatur 76234
- 5 George Davis Rt 1 Box 95 H Decatur 76234
- 6 Michael A Tackett Rt 1 Box 96 Paradise Tex.
- 7 Vicki Dutresh P.O. Box 94 Paradise Tx Rt 2 Box 27

March 16, 1995

Honorable Pete Domenici, Chairman
Senate Subcommittee on Energy and Water Resources
Washington, D.C. 20515

VIA FACSIMILE
(202) 224-8796

Dear Congressman Domenici:

It has come to our attention that your subcommittee will hold hearings on March 23, 1995 on the Upper Trinity River Feasibility Study. One aspect of this study is the Boyd Retention Dam in Wise County. I live in Wise County and also own a real estate investment company that deals primarily with real estate in Wise County, so I have a vested interest in your subcommittee hearing.

The benefits of the proposed Retention Dam appear to be negligible to the residents downriver. After speaking with a member of the Tarrant County Water Board, the main benefit would be to slow the buildup of silt in Eagle Mountain Lake,

which he says will take 300 years without the retention dam. However, there are no benefits of the Retention Dam to the residents of Wise County.

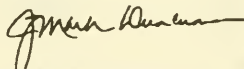
The effects of the dam on Wise County would be devastating and are as follows:

- The Retention Dam would not create a recreational lake, but rather a swamp that would contain water only 80 days a year. The water, however, would destroy all of the hardwood trees within the impoundment, so the beauty of the land would be diminished, rather than enhanced.
- The total area flooded would be 35,000-40,000 acres, much of it prime agricultural land which would become useless; the estimated loss in agriculture revenue would be approximately \$10,000,000.
- My understanding is that most of these landowners would not be allowed to sell their land, but rather they would be forced to provide an easement across their land for the flood water.
- 500 oil and gas wells, as well as numerous sand and gravel operations, would be adversely affected.
- 400 existing homes would be flooded, including the entire town of Paradise Texas.
- The Chief Appraiser of Wise County has said that the Paradise school district would be forced to declare bankruptcy due to the elimination of its tax base.
- The loss of tax base for Wise County would be substantial and would result in increased tax rates (to offset the loss) for the residents of Wise County, without any benefit to us as taxpayers.
- Wise County's economy has become vibrant and growing in the last few years. Many residents of the Fort Worth/Dallas metroplex are relocating their families to Wise County. Removing 40,000 acres from Wise County would have a major negative impact on the growth and health of the county by eliminating the building sites for new homes, schools, churches, businesses, etc.
- As a real estate developer, my company is directly affected, because we own land for future development that falls within the retention area. Just the speculation about the proposed Retention Dam has caused us to put our plans on hold.

A much cheaper and amenable alternative would be to build numerous 20 acre government lakes along the tributaries of the Trinity River. The cost of building these smaller lakes would be similar to building the Retention Dam, but the landowners would welcome such construction instead of oppose it. Further, the government would not have to purchase any land.

Please consider these devastating effects on Wise County and vote **AGAINST** the Boyd Retention Dam.

Sincerely,



J. Mark Duncum
President

March 15, 1995

Senate Subcommittee on Energy and Water Resources
 Washington, D. C. 20510 FAX #202-224-8796

ATTN: Honorable Pete Domenici, Chairman

Dear Chairman Domenici:

As a citizen and businessman of Wise County, I am strongly opposed to the U. S. Army Corps of Engineers' and the North Central Texas Council of Governments' proposed plan for the Boyd Detention Dam.

The implementation of this project would be extremely detrimental to all residents of Wise County in that it would

- 1) substantially increase our property taxes due to the great loss of tax base;
- 2) substantially decrease our economic base due to
 - a) the loss of approximately 40,000 acres of choice agricultural lands--thus the loss of agricultural income,
 - b) the loss of a substantial number of jobs in the sand and gravel and the oil and gas industries, and
 - c) the loss of natural resources to our country due to forcing the abandonment of 400-500 oil and gas wells;
- 3) force approximately 500-900 families to lose their homes, a large number of which have been family homes and lands for two or three generations;
- 4) create drastic disorder in the ecological balance by destroying standing hardwood forests--many of which are easily 100 years old--and destroying many wildlife habitats and migration grounds;
- 5) jeopardize Wise County's entire transportation network. What would become of the existing State and County roadways? and the existing railroad tracks? Who would pay to replace or relocate these? and how long would this take? and at what economic burden to the County and the individual residents?

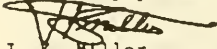
The economic unsoundness, not to mention the emotional distress, of this plan leads me to believe that this matter has not been properly researched. This plan has the definite appearance of a program designed to

- 1) benefit certain areas of the metroplex and possibly certain at-this-time-unknown individuals, and
- 2) provide a long-term project to ensure jobs to the Corps of Engineers, both without giving any consideration to the destruction of the economy and well-being of Wise County and its residents.

A scenario should not exist that would require any Wise County resident to give up his or her way of life and suffer economic disaster in order for certain residents of Tarrant and/or Dallas Counties to avoid making changes in their lives.

I sincerely request you to oppose this proposed project and work to kill it before any further funding is made available to the Trinity River Feasibility Study.

Very truly yours,



J. K. Miller
 P. O. Box 749
 Decatur, TX 76234

March 15, 1995

Senate Subcommittee on Energy and Water Resources
Washington, D. C. 20510 FAX # 202-224-8796
ATTN: Honorable Pete Domenici, Chairman

Dear Chairman Domenici:

As a citizen of Wise County, I am strongly opposed to the U. S. Army Corps of Engineers' and the North Central Texas Council of Governments' proposed plan for the Boyd Detention Dam.

The implementation of this project would be extremely detrimental to all residents of Wise County in that it would

- 1) substantially increase our property taxes due to the great loss of tax base;
- 2) substantially decrease our economic base due to
 - a) the loss of approximately 40,000 acres of choice agricultural lands--thus the loss of agricultural income, and
 - b) the loss of jobs in the sand and gravel and the oil and gas industries. Having been a petroleum landman for more than twenty years, I am acutely aware of the continued economic struggles of this industry. Forcing the abandonment of 400-500 oil and gas wells would not only escalate its economic decline but also contribute to the loss of these natural resources to our country;
- 3) displace approximately 500-900 families due to the loss of their homes--many of which have been family homes and lands for two or three generations;
- 4) drastically upset the ecological balance by destroying hardwood forests--many of which are easily 100 years old--and destroying many wildlife habitats and migration grounds;
- 5) jeopardize Wise County's entire transportation network. What would become of the existing State and County roadways? and the existing railroad tracks? Who would pay to replace or relocate these? and how long would this take? and at what economic burden to the County and the individual residents?

As I consider these factors, I cannot believe this matter has been properly researched. Further, it has the definite appearance of a program designed to

- 1) benefit certain areas of the metroplex and possibly certain at-this-time-unknown individuals, and
- 2) provide a long-term project to ensure jobs to the Corps of Engineers, both without giving any consideration to the destruction of the economy and well-being of Wise County and its residents.

A scenario should not exist that would require any Wise County resident to give up his or her way of life in order for certain residents of Tarrant and/or Dallas Counties to continue living in areas that were many years ago designated as flood plains and in which the construction of homes and businesses should never have been allowed.

I sincerely request you to work to stop this proposal before any further funding is made available to the Trinity River Feasibility Study.

Very truly yours,

Linda Manning-Miller
Linda Manning-Miller

The Honorable Pete Domenici
Senate Subcommittee on Energy & Water Resources
Washington, DC 20510

March 16, 1995

Dear Senator Domenici:

As a citizen and businessman of Wise County, I am strongly opposed to the U. S. Army Corps of Engineers' and the North Central Texas Council of Government's proposed plan for the Boyd Detention Dam.

The implementation of this project would be extremely detrimental to all residents of Wise County in that it would:

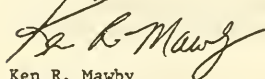
- 1) substantially increase our property taxes due to the great loss of tax base;
- 2) substantially decrease our economic base due to the loss of approximately 40,000 acres of choice agricultural lands - thus the loss of agricultural income, the loss of a substantial number of jobs in the sand and gravel and the oil and gas industries, and the loss of natural resources to our county due to forcing the abandonment of 400-500 oil and gas wells;
- 3) force approximately 500-900 families to lose their homes, a large number of which have been family homes and lands for two or three generations;
- 4) create drastic disorder in the ecological balance by destroying standing hardwood forests - many of which are easily 100 years old, and destroying many wildlife habitats and migration grounds;
- 5) jeopardize Wise County's entire transportation network.

The economic unsoundness, not to mention the emotional distress, of this plan leads me to believe that this matter has not been properly researched. A scenario should not exist that would require any Wise County resident to give up his or her way of life and suffer economic disaster in order for certain residents of Tarrant and/or Dallas County to avoid making changes in their lives.

I sincerely request you to oppose this proposed project and work for obtaining flood relief for Tarrant and Dallas Counties by the construction of several smaller conservation dams on tributaries to the Trinity River which lay upstream from the proposed area. I am certain you will understand that the Wise County citizenry does not intend to ignore this direct threat to its survival.

Thank you.

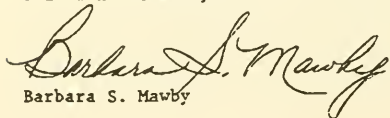
Sincerely,



Ken R. Mawby
800 Indian Trail
Decatur, Texas 76234

Gentlemen:

I urge you to please kill the Boyd dam alternative. Surely there is a better solution. Thank you.



Barbara S. Mawby

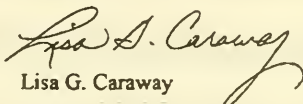
Honorable Pete Domenici, Chairman
Senate Subcommittee on Energy and Water Resources
Washington, DC 20515

March 16, 1995

Dear Congressman Domenici:

I am writing to let you know that I am opposed to the proposed Boyd Retention Dam. I am sure you are aware of the effects the dam would have on the citizens of Wise County. Please remember the people of Wise County when the subcommittee meets.

Sincerely,


Lisa G. Caraway

PREPARED STATEMENT OF GARY PALMER, CHAIRMAN OF THE BOARD,
CENTRAL UTAH WATER CONSERVANCY DISTRICT

Chairman Myers, Congressman Bevill and members of the
Subcommittee,

Once again I am pleased to appear before you today with my

fellow board members, Vice Chairman Ron McKee, Rob

Weyher and Tim Doxey. We are also accompanied by the

District's General Manager, Don Christiansen with whom I

believe you are acquainted. Based upon my past experiences in

testifying before this subcommittee, I know that the amount of

money we get is in inverse proportion to the amount of time we

take. So I will do as you have suggested and will insert my

statement into the hearing record and will briefly summarize our

request.

FISCAL YEAR 1996 REQUEST

We are pleased that the Administration has included in its budget request a total of \$44,139,000 for the Central Utah Project for fiscal year 1996. We support this figure which was arrived at after months of discussions with the Department's budget officials and with the OMB. This request represents the minimum amount which the district can spend and still maintain the optimum completion schedule required to avoid delays and cost overruns.

PROJECT MANAGEMENT

The Central Utah Water Conservancy District is now in its fourth year of managing the completion of the Central Utah Project. As a district, we actually began working to assume these responsibilities from the Bureau of Reclamation one year before the CUP Completion Act became law in October of 1992. This preparation is paying off.

The district has implemented a sophisticated computerized monitoring program which allows us to track month to month the expenditures under each of the separate sections of the CUP

Completion Act and compare those expenditures with numerous milestones which must be reached if we are to complete this project in the amount of time Congress gave us to do so. Each month the district sends a copy of this analysis as well as a written description of the progress being made on our various programs to each member of the Board of Directors and to the Office of the Secretary of the Interior whose staff is responsible to monitor our progress. A copy of last month's Executive Summary of this report is included with my testimony. It shows that our contractors are providing us with the deliverables on time and under budget.

SPANISH FORK CANYON-NEPHI IRRIGATION

The Central Utah Board made some difficult and important decisions concerning the project which will reduce costs and reflects the desires of the citizens of the state. After months of negotiations, the Board negotiated with Millard County for it to withdraw from the district and from the project. We are presently awaiting a written decision from a Utah district judge granting a petition from Sevier County to withdraw from the

district as well. The loss of these two counties from the district makes it infeasible to build the irrigation and drainage system into the Sevier river drainage. Hence, the Board has elected to abandon that feature of the project in favor of a less costly alternative which will deliver water to a more proximate area in the Utah Lake Drainage basin. This alternative was authorized in the CUP Completion Act and the district and its contractor is involved in planning and NEPA compliance activities associated with this Spanish Fork Canyon-Nephi Irrigation System alternative. The FY 96 budget requests federal funding in the amount of \$2.4 million for this activity.

UINTAH BASIN REPLACEMENT PROJECTS

Just last month the district's Board selected the preferred alternative for the Uintah Basin Replacement Projects. The alternative which was approved is smaller and less costly than other alternatives which were considered and it has the support of the Secretary's representative and Ute Indian Tribe whose assistance and continued cooperation will be critical to the successful construction of this project. There is just under \$1 million requested to pursue the NEPA compliance for this

preferred alternative in FY 96.

DIAMOND FORK SYSTEM CONSTRUCTION

The district has stepped into high gear in developing preliminary design data for the Diamond Fork System after the Secretary of the Interior approved a Record of Decision for the Diamond Fork EIS just last month. On February 15th we began final design of the Diamond Fork Pipeline and road rehabilitation work associated with the project. Road alignments are continuing this month and we have requested \$9.815 million for next fiscal year to begin actual construction.

WATER MANAGEMENT IMPROVEMENT STUDIES

The district and it's contractor are working hard to bring to reality the goal of water conservation on CUP. We are also proceeding to assist and evaluate a number of feasibility studies for additional water conservation projects across the district. Just over \$2 million has been provided in the budget request for our ongoing water conservation program activities.

WASATCH COUNTY WATER EFFICIENCY PROJECT

The district and the Department have been working closely to provide for the completion and submittal to the Secretary of a

feasibility study for this multifaceted irrigation, water conservation and fish and wildlife enhancement project. A preferred alternative has been identified which includes the delivery of a Daniel's Creek replacement water supply which will allow the district to acquire 4,500 acre feet of water rights for stream restoration in the upper Strawberry river. It is expected that this feasibility work will be completed with this year's funding request of \$2,146,000.

The district is continuing to pursue several other studies and projects which include the Utah Lake Salinity Control Study, a conjunctive use groundwater study, restoration of diversion works on the Duchesne and Strawberry rivers and efforts to restore and enhance flows and riparian habitat along the Provo River.

UTAH RECLAMATION, MITIGATION AND ENHANCEMENT COMMISSION (URMCC)

This past year the President completed the appointments to the URMCC which has the responsibility to provide the fish and wildlife mitigation for construction of CUP. As a board we have

appointed our General Manager, Don Christiansen to serve as the district's representative on the Commission. We are pleased to have accompanying us today several of the other commissioners who will speak to the budget request for title III of the Completion Act. We at the district appreciate the excellent working relationship we have developed with the Commission and its staff. The Commission has hired several excellent professionals who are doing an outstanding job with the Commission's responsibilities. The district wholeheartedly endorses the request of \$16,156,000 for title III activities in addition to the \$5 million which has been requested as a power beneficiary contribution to the Utah Reclamation Mitigation Account trust fund under title IV. The State of Utah and the district will be contributing \$3,796,000 into this trust account for FY 96 in support of the goals of fish and wildlife enhancement.

Mr. Chairman, as you can determine from this statement there is a lot that is going on at our district. We have assembled a hard working staff of professionals who are doing an excellent job in

fulfilling the duties and responsibilities assigned to the district in Public Law 102-575. We believe in ourselves and we hope you will continue to have trust in our ability to accomplish the job Congress asked us to do. Thank you.

PREPARED STATEMENT OF COUNCILMEMBER DAVID L. RAIL, CITY OF
PROVO, UT

Mr. Chairman, members of the Subcommittee, I would like to request your support for appropriating \$600,000 in the FY 1996 Energy and Water Appropriations Bill for a Reconnaissance Phase Study in Provo, Utah.

Last September, the House Committee on Public Works and Transportation approved a survey resolution requesting the Secretary of the Army to review the report of the Chief of Engineers on the Jordan River Basin, to determine whether there is a federal interest in flood damage reduction, environmental restoration and protection along streams draining into Utah Lake near Provo, Utah. The survey resolution was requested since Provo has experienced significant flooding problems in the past, and wants to take corrective measures to negate the effect of future flooding disasters on the community.

From 1982 through 1984 Provo City was impacted by severe flooding which caused significant damage to the community. A state of emergency was declared in Utah County as well as Salt Lake County. The Army Corps of Engineers was called in at that time to construct dikes and levees. The Army Corps spent approximately \$2 million to upgrade an existing dike adjacent to the Provo airport, and a new dike was constructed along the south side of Provo River from the Utah Lake State Park linking it with the airport dike. An additional dike was built along the north shore of Provo Bay to protect residential areas in the southwest section of the City. Congress specifically directed the Army Corps in 1983 to construct these flood control projects in Provo. However, Provo still spent \$5 million in repairing damaged property

and constructing emergency flood control projects, many of which were temporary in nature. Most of the emergency flood control projects were related to runoff from Rock and Slate Canyons, which are part of federal lands owned by the U.S. Forest Service. Since Provo's annual budget at that time was only \$15 million, providing \$5 million was an enormous share for the City to finance.

As a result of this flooding disaster, Provo prepared a master plan which identified \$30 million in flood control projects to be constructed, consisting of channels and pipes along with detention basins, inlet boxes, and related facilities. In an attempt to finance these improvements Provo created a Service District in 1992 that generates \$500,000 a year for these capital improvements projects. However, at this rate of revenue generation it will take more than 50 years to fund the flood projects identified in the master plan. Provo critically needs another source of funding to finance this flood control project.

The flood control projects identified in the City's Master Plan are the next logical step in flood control for Provo, beyond the Utah Lake and Provo River Diking Project completed in cooperation with the Corps of Engineers in 1983 and 1984. Major elements of the capital improvement program are flood control projects required to handle snowmelt runoff from the canyons on federal lands immediately east of the City. Runoff from these canyons does not occur frequently, but when flooding does occur it can cause high flow quantities requiring large and expensive capital improvements. The flood control projects associated with canyon runoff have an estimated cost of \$9 million. It is this portion of the flood control project for which the City of Provo is seeking involvement from the Army Corps of Engineers. The remaining \$21 million in flood control improvements are considered local flooding problems in which the Corps has traditionally not had an interest. The City of Provo will finance the local flood control projects through the

special taxing district established in 1992. As you can see, Provo is taking a proactive stance in preventing future flooding events from damaging our community. However, funding the entire project is beyond the local community's capabilities.

Last September, I met with representatives of the Planning Division of the U.S. Army Corps of Engineers in Washington to discuss the Corps' involvement in this flood control project. Representatives of the Corps had initially viewed the project as a stormwater project because of local drainage problems. It was clarified at this meeting that one-third of Provo's flooding problem comes from snowmelt from the Uinta Mountains. The Corps said that flooding caused by snowmelt from the mountains was clearly a flood control issue, that should have Corps involvement, as opposed to a local drainage problem which would not fall under the Corps' jurisdiction. Given this explanation the Corps representatives indicated that it was appropriate to obtain authorization in the Water Resources Development Act. Since this legislation did not pass Congress Provo obtained authorization through a Survey Resolution approved by the Committee on Public Works and Transportation, due to the efforts of Rep. Bill Orton.

I realize that the Administration has proposed a new policy that would not allow federal funding for new Army Corps flood control projects unless they are national in scope, or affecting more than one state. Mr. Chairman, I am hopeful that the Subcommittee will not support this policy. Major flooding events do not occur frequently in Provo, but when these events occur they can be massive in scope. A community the size of Provo, which has a population of approximately 90,000, cannot be expected to fund \$30 million in flood control improvements entirely on our own. Provo has taken steps to largely finance flood control improvements in the City, but help is needed from the federal government for portions of the flooding that are not local in nature...

especially since the major flooding events occur from lands owned by the federal government.

Mr. Chairman, I am hopeful that your Subcommittee will see fit to support funding an appropriation request of \$600,000 for a Reconnaissance Phase Study in Provo, Utah. Thank you again for the opportunity to submit testimony before Subcommittee on Energy and Water Development.

PREPARED STATEMENT OF JACK A. BARNETT, EXECUTIVE DIRECTOR,
COLORADO RIVER BASIN SALINITY CONTROL FORUM

OVERVIEW

The Colorado River Basin salinity control program was authorized by Congress in 1974. The Title I portion of the Colorado River Basin Salinity Control Act responded to commitments that the United States had made via a treaty with Mexico with respect to the quality of water being delivered to Mexico below Imperial Dam. Title II of the Act established a program to respond to salinity control needs of Colorado River water users in the United States and to comply with the mandates of the then newly legislated Clean Water Act. Initially, the Secretary of the Interior and the Bureau of Reclamation were given the lead Federal role by the Congress. This testimony is in support of funding for the Title II program.

After a decade of investigative effort, the Basin states concluded that the Salinity Control Act needed to be amended. Congress revised the Act in 1984. That revision, while keeping the Secretary of the Interior as lead coordinator for Colorado River Basin salinity control efforts, also gave new salinity control responsibilities to the Department of Agriculture, and to a sister agency of the Bureau of Reclamation—the Bureau of Land Management. Congress has charged the Administration with implementing the most cost-effective (dollars per ton of salt removed) program practicable. The Basin states are strongly supportive of that concept, as the Basin states cost share between 25 and 30 percent of these federal expenditures for the salinity control program, while in addition proceeding to implement their own salinity control efforts in the Colorado River system.

Since the congressional mandates of nearly two decades ago, much has been learned about the impact of salts in the Colorado River system. The Bureau of Reclamation has recently completed studies on the economic impact of these salts. Reclamation recognizes that the damages to United States' water users alone may soon be approaching \$1 billion per year.

The Colorado River Basin Salinity Control Forum (Forum) has become the seven-state coordinating body for interfacing with federal agencies and Congress to support the implementation of a program necessary to control the salinity of the river system. Forum members are appointed by the governors of the seven Colorado River Basin states. In close cooperation with the Environmental Protection Agency (EPA) and under requirements of the Clean Water Act, every three years the Forum prepares a formal report analyzing the salinity of the Colorado River, anticipated future salinity, and the program necessary to keep the salinities at or below the levels measured in the river system in 1972.

In setting water quality standards for the Colorado River system, the salinity levels measured at Imperial, Parker, and Hoover Dams in 1972 have been identified as the numeric criteria. The plan necessary for controlling salinity has been captioned the "plan of implementation." Most recently, the Forum completed its 1993 Review of water quality standards, and the Colorado River Basin states have submitted this report to EPA. Conveyed with this testimony is a copy of the 1993 Review that is provided for your information. The report includes that updated plan of implementation. The level of appropriation requested in this testimony is in keeping with the identified plan in the enclosed report. If adequate funds are not appropriated, state and federal agencies involved are in agreement that the numeric criteria will be exceeded and damage from the high salt levels in the water will be widespread and very significant.

The federal agencies associated with the salinity control program annually prepare an analysis of the program, titled the Joint Evaluation Report. The federal agencies identify in their report the same plan of implementation.

JUSTIFICATION

The \$18,600,000 requested by the Forum on behalf of the seven Colorado River Basin states is the level of funding necessary to proceed with the Bureau of Reclamation's portion of the plan of implementation. Reclamation has agreed that this funding level is appropriate if salinity in the Colorado River is to be controlled so as not to exceed the established numeric criteria and threaten the associated water quality standards. Reclamation, in part, requested a reduced level of appropriation because the funds that have been appropriated by the Congress are approaching the total amount authorized by the Congress when the Salinity Control Act was initially authorized in 1974. The Forum has brought to Congress a legislative initiative addressing the ceiling issue so that the salinity control program can continue to move ahead. Legislation has been introduced in both the House and the Senate. The administration is expected to support the legislation. Plans call for the authorizing legislation to be enacted before May 1, 1995.

DETAILS CONCERNING THE REQUESTED APPROPRIATION

Of the \$18,600,000 requested by the Forum, we believe that \$500,000 should be allocated for the general investigation efforts of the Bureau of Reclamation. With respect to construction, \$6,799,000 should be spent on authorized construction of the Grand Valley Stage I Unit in the State of Colorado. Further, in the State of Colorado, \$4,001,000 should be spent in lining laterals in irrigation systems in the Lower Gunnison. In addition, the Forum believes that \$300,000 should be spent in verifying the adopted plan for disposing of brines collected in the Paradox Valley of Colorado through deep well injections. Lastly, the Forum supports an appropriation of \$7,000,000 for new authorities given to Reclamation with the passage of the above referred to legislation. We are confident that the proposed new authorization contained in the legislation will offer Reclamation some of the most cost-effective salinity control options.

The Forum further supports the funds requested by the President to perform needed operation and maintenance tasks on already constructed features of the salinity control program.

PREPARED STATEMENT OF DONALD T. LOPEZ, P.E., NEW MEXICO INTERSTATE STREAM COMMISSION

This statement is submitted in support of appropriations for U.S. Bureau of Reclamation for the Colorado River Salinity Control Program authorized under Title I and Title II, Public Law 93-320.

The President's Fiscal Year (FY) 1996 budget proposal totals \$2,300,000 for Title I work and \$13,705,000 for Title II work. I concur with the President's budget proposal for Title I and disagree with the President's budget proposal for Title II.

The Colorado River Basin Salinity Control Forum, comprised of representatives of the seven Colorado River Basin states including New Mexico, has examined all of the features needed to control the salinity of the Colorado River. The Forum concurs on funding at the total amount of \$18,600,000 for Title II work to be undertaken by the U.S. Bureau of Reclamation. The breakdown of the Forum's

requested funding is as follows: \$500,000 for general investigations; \$6,799,000 for the Grand Valley project; \$4,001,000 for the Lower Gunnison project; \$300,000 for the Paradox project; and \$7,000,000 for the New Format, i.e., new authority anticipated to be given to Reclamation under legislation that has been introduced in the U.S. House of Representatives (HR 930) and in the U.S. Senate (S 523).

I fully support the President's budget proposal for the appropriation of \$2,300,000 for Title I. I request that the President's budget proposal for the appropriation of \$13,705,000 for Title II be increased by \$4,895,000 to a total of \$18,600,000 for FY 1996.

The opportunity to present this statement in support of the Reclamation's Colorado River Salinity Control Program is greatly appreciated.

PREPARED STATEMENT OF LEONARD C. BURCH, CHAIRMAN, SOUTHERN
UTE INDIAN TRIBE

Mr. Chairman and members of the Committee:

My name is Leonard C. Burch. I am Chairman of the Southern Ute Indian Tribe. I am accompanied by my fellow Council member, Marvin Cook. We are here today because our Tribe has a "Contract with America." The Contract I refer to is the Colorado Ute Indian Water Rights Settlement Act of 1988.

The Settlement Act is the latest in a long line of contracts which the United States government has entered into with the Southern Ute Indian Tribe dating back to 1859. As you know, Mr. Chairman, under the terms of the Colorado Ute Indian Water Rights Settlement Act of 1988, the President of the United States and the Congress mandated that the Animas-La Plata Water Resource Development Project be constructed, to fulfill the trust responsibility of the United States to the Colorado Ute Indian Tribes and to settle our water claims in Southwestern Colorado.

Unfortunately, Mr. Chairman, I must report to you and the members of the Committee that very little progress is being made toward fulfillment of the terms of my Tribe's Contract with America. At the time of its passage, the 1988 Colorado Ute Indian Water Rights Settlement Act was held up as a model for Indian tribes throughout the United States; a model which said: "Negotiate instead of litigate. Do not go on the warpath - sit down and smoke the peace pipe."

At the time of passage of the 1988 Settlement Act, the Colorado Ute Indian Tribes did not request that the Congress grant any special exceptions to the National Environmental Policy Act, the Endangered Species Act, or the Clean Water Act. Had the Colorado Ute Indian Tribes known then what they know now, I am certain the Tribes would have requested that Congress consider exceptions to those federal statutes.

What does the Tribe know now that it didn't know then? First: The Tribe knows that despite the 1988 Settlement Act and the Congressional mandate to build the Animas-La Plata Project, the U.S. Fish and Wildlife Service can reverse a 1979 non-jeopardy opinion under the Endangered Species Act, and issue a new jeopardy opinion which requires seven years of study and prevents the Tribe and other water users from receiving that which they bargained for - Phase I of the Animas-La Plata Project.

Second: The Tribe knows that the Bureau of Reclamation, which issued a final Environmental Impact Statement on the Animas-La Plata Project in 1980, can arbitrarily decide to re-do the Environmental Impact Statement. This arbitrary action resulted in litigation by national and local environmental groups whose sole objective is to delay construction of the Animas-La Plata Project and thereby drive up its cost.

Third: The Tribal Council knows that under the provisions of the Clean Water Act it is necessary for the Bureau of Reclamation to perform a 404B-1 analysis in order to retain an exemption previously allowed by Congress to would allow construction of the Animas-La Plata Project to proceed.

Fourth: The Tribe knows now the heavy hand which the Environmental Protection Agency has in the process. Recently, Ute Mountain Ute Chairman Judy Knight-Frank and I received a letter from the Regional Administrator of Region 8 of the EPA. We were more than somewhat dismayed to read parts of the letter in the newspaper prior to the time it was delivered to our Reservations. The EPA is insisting that the Bureau of Reclamation study alternatives to the Animas-La Plata Project, even though the Project has been studied for twenty-seven years. The EPA letter states "It appears to us that there is a misunderstanding on the part of the U.S.B.R. and the Tribes that the Settlement Act of 1988 somehow limited the alternatives analysis process."

There is certainly a misunderstanding, but it is on the part of the EPA. The Southern Ute Indian Tribe spent over ten years negotiating alternatives to the Animas-La Plata Project. In the 1970's, over thirty alternative projects were considered and rejected. The alternative which my people accepted and bargained for in the Colorado Ute Indian Water Rights Settlement Act, and which we assumed that the United States Congress accepted at the time of the passage of the Act, was construction of the Animas-La Plata Project. The EPA letter seeks to dictate that the Southern Ute and Ute Mountain Ute Indian Tribes accept something different from the Animas-La Plata Project we negotiated for in good faith. We do not intend to accept any alternative which would give my Tribe less than that which we bargained for - wet water, municipal and industrial water as well as irrigation water and a major reservoir for the future use for Tribal members. In our view, any alternative to the Animas-La Plata Project would be a breach of our Contract with America.

Fifth: The Southern Ute Indian Tribe learned that reports of the Inspector General are not always factual. The Inspector General's Audit Report of July 1994, regarding the development status of the Dolores and Animas-La Plata Projects is inaccurate. For example, the Inspector General's report, at Page 14, states "We noted that under the Settlement Act, Colorado Ute Indian Tribes have a right to market their water supplies." This is contrary to Section 5(b) of the Act, which prohibits the Tribes from marketing water.

The Inspector General's report suggests that the Tribes convert their Indian water rights from irrigation use to M&I water supply functions. Why the Inspector General believes such a suggestion would be attractive to Indian Tribes is beyond belief. As this Committee knows, under the terms of the Leavitt Act, the Indians' share of irrigation construction costs are properly deferred, whereas 100% of the costs for municipal and industrial water supply must be repaid, plus interest.

And finally, the most insulting remark contained in the Inspector General's report suggests that the Bureau of Reclamation determine whether the Tribes "are interested in receiving compensation in lieu of constructing the irrigation distribution systems for agricultural

development." In other words, give the Indian Tribes money instead of water. Both the Southern Utes and Ute Mountain Utes have been down that path before. In 1880, the United States Congress, without the consent of the Utes, took away all of the Ute Indian Tribes land base in Western Colorado, Eastern Utah, and Northwestern New Mexico. Seventy years later, the three Ute Tribes were awarded \$32 million by the Indian Claims Commission. The Southern Ute's share of that award was \$7 million. Forty-four years later, only a fraction of the land which was taken has been restored to Tribal ownership and the Tribe does not have the money - no land and no money. We do not want to be in a position fifty years from now of no water and no money. We bargained for wet water in perpetuity, not dollars. The Inspector General's suggestion is insulting to the Ute Indian people.

Today, the Southern Ute Indian Tribe, the Ute Mountain Ute Tribe, the water districts, municipalities, and the good citizens of Southwestern Colorado find themselves enmeshed in a bureaucratic swamp of white tape, which threatens to destroy my Tribe's Contract with America.

On behalf of our Tribe, we are here today, Mr. Chairman, to request that the members of your committee once again assist us in overcoming the obstacles we face by appropriating additional funds so that upon the Bureau of Reclamation's completion of the Supplemental Environmental Impact Statement construction of the Animas-La Plata Project can finally commence during fiscal 1996. We ask you to help so that our Contract with America becomes a reality and continues as a model for other Indian tribes.

Thank you.

PREPARED STATEMENT OF WILLIAM P. SCHRADER, PRESIDENT, SALT RIVER PROJECT

Mr. Chairman:

My name is William Schrader. I am President of Salt River Project (SRP) located in Tempe, Arizona. SRP comprises both the Salt River Project Agricultural Improvement and Power District and the Salt River Valley Water Users' Association. I am pleased to have the opportunity to submit this testimony on SRP's behalf.

Founded in 1903, SRP is the oldest multi-purpose reclamation project in the United States. It is the nation's third-largest public power utility and Arizona's largest water supplier. SRP is proud of its role in contributing to central Arizona's robust economy and its outstanding quality of life.

Many of the programs, projects, and activities within this subcommittee's jurisdiction directly affect SRP, its water and power customers, and the State of Arizona.

Through the years, this subcommittee has helped guide the wise and safe development of our nation's water and power resources, including those located -- like SRP's -- in arid regions of the West.

Your vision and support have made possible many initiatives to create a habitable and prosperous desert Southwest. This subcommittee has been a

key partner in the development of our region, and we thank you for your efforts and congratulate you on your accomplishments.

As a result of last November's election results, Congress, in general, and this subcommittee, in particular, have undergone profound changes.

At SRP, we are keenly aware of the historic budgetary decisions confronting the 104th Congress, and also of the pressing time constraints imposed upon your actions. As a result, I will restrict my testimony to the two issues most critical to Salt River Project, and respectfully seek your favorable consideration of each.

Safety of Dams

Of principal interest to SRP at this time is the appropriation for fiscal year 1996 of certain Safety of Dams projects managed by the Bureau of Reclamation.

The six reservoirs within the SRP water supply and delivery system are maintained not only to furnish water, but also to realize conservation, hydroelectric power, recreational value, and flood control.

As evidenced earlier this year by devastating floods in California and severe floods in Arizona, particularly in the Verde River Valley, the need for improved flood control and sound dam construction along America's urban water ways is imperative.

One way this goal is being realized is through the work of the Reclamation Safety of Dams Act. As authorized by the 1984 amendments to this Act, four of the six dams on the SRP system have undergone, or are now undergoing, modifications to strengthen and, in some cases, improve their capacity to control floods.

I am pleased to report that modifications on two of the four dams on SRP's system are substantially complete. All modifications to Stewart Mountain Dam on the Salt River were completed in April 1992, and structural modifications to Horseshoe Dam on the Verde River were completed this past January.

The projects for which I seek appropriations today are nearing completion after several years of construction. They will substantially enhance the structural integrity of dams located on the SRP system. They will

improve the physical security of the people, property, and natural resources of the Phoenix metropolitan area, as well as help ensure a safe and reliable surface water supply for the Valley of the Sun for generations to come.

Safety of Dams construction is well under way on the two additional dams in need of modification. To continue construction on these projects, the Bureau of Reclamation has requested for fiscal year 1996 \$8,085,000 for Bartlett Dam and \$29,411,000 for Theodore Roosevelt Dam. The Bureau has requested \$1,103,000 for revegetation and environmental mitigation work following the completion of structural modifications to Horseshoe Dam.

Funding at these levels should be sufficient to allow the Safety of Dams construction work to proceed on schedule. SRP will continue to meet its cost-sharing commitment made pursuant to the Safety of Dams Act.

SRP urges the subcommittee to recommend the full amount of the Administration's budget request for each of these projects in fiscal year 1996.

Navajo Generating Station

SRP is pleased to report that participants in the Navajo Generating Station (NGS) broke ground last August on the plant's sulfur dioxide scrubber project. Construction is proceeding on schedule and according to budget.

Four utilities and the Federal government -- through the Bureau of Reclamation -- have interests in NGS, which is located in Arizona on the Navajo Nation near the city of Page. The Bureau of Reclamation owns a 24 percent share of the plant for the purpose of meeting the pumping requirements for the Central Arizona Project. SRP serves as plant manager.

To meet clean air standards imposed by the Congress through passage of the Clean Air Act and promote increased visibility at the Grand Canyon National Park, the Bureau of Reclamation, the Environmental Protection Agency, the State of Arizona, SRP, and the Grand Canyon Trust agreed in 1991 that sulfur dioxide scrubbers would be installed at NGS. That agreement was approved by President Bush in September 1991 at the Grand Canyon.

SRP requests that, in accordance with the Navajo Project Participation Agreement, the subcommittee recommend the full amount of the Administration's budget request of \$20,300,000 for the Bureau's share of NGS capital improvements.

These funds will provide the federal government's fiscal year 1996 share of the cost of installing the scrubbers and other necessary capital additions to NGS and associated transmission systems.

SRP also wishes to express its continued support for the Central Arizona Project (CAP). Arizonans understand that the CAP represents an important link to the state's future. Water is a scarce and precious resource in Arizona's desert climate, and the CAP could help realize the state's hopes for economic security and the preservation of our unique quality of life.

Conclusion

Mr. Chairman, in conclusion, SRP understands that the subcommittee faces serious budgetary constraints in fiscal year 1996 and must make hard choices in allocating available resources among competing priorities. We have taken this into consideration in choosing to limit our testimony to just two important issues.

It bears emphasis that these are the two most critical appropriations needs of the Salt River Project at this time, and that both issues further national goals and policies and merit your favorable consideration.

Thank you for the opportunity to submit this testimony.

PREPARED STATEMENT OF IRIS Z. BLETSCH, CHAIRMAN, BOARD OF DIRECTORS, CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

Mr. Chairman, members of the Committee, I'm Iris Bletsch, Chairman of the Clark County Regional Flood Control District Board of Directors. With me today is Gale Fraser, the General Manager and Chief Engineer of the Flood Control District. I would like to start by thanking you for the opportunity of appearing before you today in order to present testimony regarding the need to continue the construction of the U.S. Army Corps of Engineer's flood control project in the Las Vegas Valley.

Las Vegas has experienced unprecedented growth over the past twenty-five years and all signs indicate that this growth will continue for some time into the future. People have moved from all parts of the nation to seek employment, provide necessary services, and become part of this dynamic community. In 1970, the total population of Clark County was 273,000. By 1990, that population had exploded to 800,000 -- 95 percent of whom lived in the Las Vegas Valley. Nearly 5,000 people have moved into the area each and every month for the last five years making Las Vegas one the fastest growing areas in the nation. With an annual growth rate of between five and six percent, current estimates indicate that the population of the Valley will exceed one million by the end of this year.

Since 1960, the area has also experienced at least seven "million dollar floods" -- floods which caused in excess of \$1,000,000 in damages to public and private facilities. In that same time frame at least 22 people have lost their lives in nine separate flash flood events. In 1990, three people died in separate flooding incidents, and two more drowning deaths were suffered in 1992.

Much of this devastation and loss of life has occurred along the Flamingo Wash. In all likelihood, the level of damages and deaths would have been severely diminished or would have been non-existent if the projects proposed by the Corps of Engineers had been in place. These facilities are designed to collect the flood flows from a 160 square mile contributing drainage area, funnel them into detention basins, and then release these flows through the urbanized area of the Las Vegas Valley at non-damaging rates. Because flow over the alluvial fans which ring the Valley is so unpredictable in terms of the direction it will take during any given flood, all of the components of the Corps' plan are critical.

The plan identified in the Corps' Feasibility Study for the Tropicana and Flamingo Washes Project includes four debris basins, four detention basins, 28 miles of primary channels, and a network of lateral collector channels. The debris basins are designed to collect flood flows from undeveloped areas at the headwaters of the alluvial fans and trap large bedload debris before it enters the channels and causes erosion damage. The detention basins will function to greatly reduce the magnitude of the flood flows so that the flows can be safely released through the developed urbanized area at non-damaging rates. The outflow from the debris basins and the reduced flows from the detention basins will be contained in the primary channel system which will also serve as outfalls for the lateral collector channels. While this latter element is considered to be a non-Federal element of the entire plan, it is a necessary element for the plan to function properly. The total cost of the project is \$217,500,000. It is anticipated that the entire project will be completed by the year 2002.

The Feasibility Report for this project was completed in October 1991, and Congressional authorization was obtained in the Water Resources Development Act (WRDA) of 1992. The first federal appropriations to initiate construction of the project became available through the Energy and Water Development Appropriations Act, 1994. This bill provided \$3,685,000 for preconstruction engineering and design, as well as initial construction funding in the amount of \$3,000,000. The Energy and Water Development Appropriations Act, 1995 provided construction funding in the amount of \$7,000,000. The Corps of Engineers will use these funds in this fiscal year (FY 95) to initiate construction of the first feature of the project, modifications to the Red Rock Detention Basin.

Certain elements of the Corps' plan have already been constructed by the local community but require modifications in order to fit into the Corps' plan and fulfill the need for a "total fan approach" to the flooding problems of the Las Vegas Valley.

The Red Rock Detention Basin was constructed by Clark County in 1985. In order to increase the level of downstream protection provided by this feature, the releases from the basin will be reduced and its capacity to hold flood waters will be increased by a combination of: 1) increasing the height of the embankment, and 2) excavating additional material from the impoundment area. The funding provided through previous appropriations will be used to initiate the construction of these modifications. It is expected that construction will begin in June of this year and continue for nearly one year.

Clark County also constructed the Upper Flamingo Detention Basin. This facility was completed in February 1992 and is one of the linchpins of the entire program. Under the Corps's plan, the releases from this feature will also be reduced and its storage capacity increased. The Flood Control District and Clark County have been working with the local development community in an effort to have them remove the excess sand and gravel from the impoundment area of this facility. Our goal is to have the construction contractor for the project remove this surplus material for their own uses at no cost either to the Federal or local governments, thus providing a significant savings to total project costs as well as to the construction schedule.

As one of the local sponsors for this important flood control project, we are anxiously awaiting the start of construction and we are certain that Clark County is as anxious as we are for this project to begin. The Project Cooperation Agreement has been fully executed and construction will begin within the next few months. The District has completed a right-of-way acquisition plan which identifies the land ownership of all of the parcels in the area of the Corps' project. We are in a position that will allow us to acquire the necessary parcels in the most expeditious manner possible as soon as the Corps establishes the alignment for any feature of the project. The District has also been setting aside over \$600,000 each month in order to accrue sufficient funds to meet our share of the total project costs. I realize that this may not sound like a significant amount in terms of the Federal budget; but you should realize that \$600,000 is roughly 25 percent of the District's total monthly revenues. Obviously this is a very important public works project to southern Nevada and the Las Vegas community.

The Administration's fiscal year 1996 Civil Works Budget Request, presented to Congress on February 6, 1995, includes \$4,000,000 for the continued design and construction of additional phases of the Tropicana and Flamingo Washes Project. Combined with the programmed carryover funds, these funds will allow the Corps to complete the construction of the Red Rock Dam modifications, initiate the construction of the Tropicana Dam, continue the planning, engineering and design of the Flamingo Diversion Channel, and initiate the planning, engineering and design of the Flamingo Channel.

Mr. Chairman, this is an important public safety project designed to provide flood protection for one of the fastest growing urban areas in the nation. We ask that you provide the Secretary of the Army with the \$4,000,000 included in the Administration's Civil Works Budget Request in order to allow the U.S. Army Corps of Engineers to continue the design and construction of additional phases of the project.

Because of the rapid rate of growth being experienced in the Las Vegas Valley, there is a strong likelihood that some features of the Corps' Tropicana and Flamingo Washes project will be implemented by the local community prior to the completion of the plans and specifications by the Corps. The Corps' existing regulations do not allow the local sponsors to receive credit for the construction of those features. It would be advantageous to both Clark County and the Regional Flood Control District if language allowing such a credit were added to the appropriate legislation. Language similar to the following is suggested:

The flood control project for the Tropicana and Flamingo Washes, Nevada, authorized by Section 101 of the Water Resources Development Act of 1992 (P.L. 105-580, Section 101(13), (106 Stat. 4797)) is modified to provide that, if the non-Federal and/or other interests carry out any work associated with the project, the Secretary shall credit the Non-Federal Sponsors an amount equal to the Federal share of the costs of such work, without interest. The Secretary shall consider the costs and benefits produced by any work which is carried out under the preceding sentence by non-Federal and/or other interests and which the Secretary determines is compatible with such project.

The suggested language is not without precedent. The Regional Flood Control District understands that the California Ports (Los Angeles and Long Beach Harbors, San Pedro Bay, California) were successful in having similar language added to the Water Resources Development Act of 1988 to provide credit for work they performed in advance of another Corps of Engineers project.

The Regional Flood Control District also has serious concerns regarding the major changes in policy for future Corps of Engineers flood control projects which are proposed in the Administrations's FY96 Civil Works Budget. If effected, this change in policy could significantly impact the Corps' level of involvement in projects similar to the Tropicana and Flamingo Washes project. It is our understanding that under the proposed policy, involvement by the Corps of Engineers would be limited to those projects which have: 1) at least 50 percent of their waters originating outside the state in which the project is located, 2) a benefit cost ratio of 2 to 1, and 3) a local sponsor willing and able to provide 75 percent of the project costs. Based upon the first criteria alone, in the western states only projects along the Colorado, Snake and Columbia Rivers would appear to be eligible under the Administration's proposal. Intrastate floods can be as devastating as interstate floods. To withhold the technical expertise, broad experience, and financial resources of the federal government from local governments' efforts to protect the lives and property of its citizens is short-sighted at best. We believe that dollars are better spent on preventing disasters than on recovering from them. This proposed policy should not be implemented.

Thank you for your time. Mr. Fraser and I will be happy to answer any questions you may have.

PACIFIC NORTHWEST WATER RESOURCE DEVELOPMENT PROJECTS
PREPARED STATEMENT OF ANGUS DUNCAN, CHAIRMAN, NORTHWEST
POWER PLANNING COUNCIL

Mr. Chairman and members of the subcommittee, my name is Angus Duncan, and I am chairman of the Northwest Power Planning Council. The Council was authorized by Congress in 1980 and created as an interstate compact by the states of Idaho, Montana, Oregon and Washington. Its purpose is to develop a 20-year regional electric power plan to ensure the Pacific Northwest an adequate supply of power at the lowest possible cost. The plan is designed to ensure that the region only acquires resources it needs and that it acquires the lowest-cost resources first. The Council also was directed to develop a major program to rebuild fish and wildlife resources that have been harmed by hydroelectric development in the Columbia River Basin. The Council carries out its responsibilities under the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (P.L. 96-501).

I appear today to present testimony on the Fiscal Year 1996 budgets of four federal agencies. The four agencies are the Army Corps of Engineers, Bonneville Power Administration, Bureau of Reclamation, and the National Marine Fisheries Service. The last one is within the jurisdiction of another appropriations subcommittee.

Our interest in these budgets stems from the fact that each of these agencies implements, finances or regulates activities that are part of the Council's Northwest Power Plan and Columbia River Basin Fish and Wildlife Program. Through these and several other federal agencies, the United States enters into a partnership with electricity ratepayers of the Columbia River Basin to pay for measures designed to protect, mitigate and enhance fish and wildlife that have been impacted by hydroelectric dams. Ratepayers finance most of this work, but in the current fiscal year, the federal contribution again will top \$100 million. Congress recognized in the Northwest Power Act that anadromous fish of the Columbia River Basin are important to both the region and the nation. Both the Council's power plan and its fish and wildlife program were developed under the mandates of the Act, in which Congress provided direction and the framework for the Council as a policy and planning body to implement its actions through these federal agencies.

The power plan, last amended by the Council in 1991, is intended to assure the region of an adequate, efficient, economical and reliable power supply, as required by the Northwest Power Act. The plan incorporates a broad and detailed review of electrical resources that balance sometimes-competing attributes. Actions derived from this careful review chart the least expensive path in economic and environmental terms), yet most flexible course the region can take down the uncertain path of resource acquisition to meet demand for electricity in the future.

The fish and wildlife program complements the power plan and is designed to protect, mitigate and enhance fish and wildlife, and related spawning and rearing grounds, of the Columbia River Basin that have been impacted by the construction and operation of hydropower facilities. The Council last amended the program in December 1994. It is a comprehensive program that aims to improve the survival of all fish and wildlife populations in the Columbia Basin. As required by the Northwest Power Act, measures in our program are based on the best available scientific knowledge and were developed with broad public involvement. The program includes both immediate and longer-term measures designed to improve salmon survival at every stage of the life cycle. In general terms, these can be divided among the so-called four Hs of human-caused impacts: Hydropower, Habitat, Hatcheries and Harvest.

The Act imposed responsibilities on federal river, land and power agencies to act in a manner consistent with the Council's power plan and fish and wildlife program or to consider the plan and program in their decision-making "to the fullest extent practicable." The ability of federal agencies to meet their objectives under the Act is tied directly to their funding levels and budget priorities.

Corps of Engineers

Again this year, one focus of our testimony is on the need to reduce salmon and steelhead mortality as these young fish migrate down the Columbia and Snake rivers. The Corps of Engineers' proposed budget for 1996 contains adequate funding for continued testing and installation of new or improved mechanical bypass and related transportation facilities at mainstem dams -- Lower Granite, Little Goose, Lower Monumental, and Ice Harbor dams on the Snake, and McNary, John Day, The Dalles and Bonneville dams on the Columbia. The Council supports the proposed budget of \$78.8 million for the juvenile fish mitigation program.

However, additional funds should be made available to evaluate and install spill improvements at the dams, including deflectors and slotted spill gates. To improve fish monitoring and provide essential evaluations of fish survival, it is imperative that PIT (Passive Integrated Transponder) tag detectors be installed as rapidly as feasible at the John Day and Bonneville projects.

The Council program provides that mitigation should be planned and put in place where parties are expected to experience disproportionate adverse effects from recovery actions -- including harvest reductions, drawdown impacts, etc. We believe that it is essential to provide these mitigation assurances before actions are taken so that implementation can proceed without misunderstandings and unnecessary or disproportionate losses by affected parties.

Juvenile fish bypass systems and turbine-intake screens at Corps-operated dams:

In 1987 the Council helped develop a consensus among private and public utility interests, Indian tribes, fish and wildlife interests and Bonneville on the need for expedited completion of new and approved fish bypass facilities at all the mainstem dams. This regional consensus resulted in a schedule for completing these facilities by 1994. But this schedule was predicated on funds being available in the federal budget as part of the Corps of Engineers responsibilities. The current schedule calls for completion of the conventional bypass system by 1998 except for The Dalles project.

The Council believes the completion date for bypass facilities must not be allowed to slip again without clear justification, particularly in light of declining salmon runs and the endangered species listings by the National Marine Fisheries Service.

Surface bypass facilities

The Council supports testing, and if beneficial, installing surface bypass systems at the federal hydroelectric dams. These newer systems direct juvenile fish over spillways and may help salmon pass the hydropower dams more successfully and avoid the pressure changes that occur when the salmon go through conventional bypass systems. Funds are included in 1996 to design and test surface collection and bypass systems at Lower Granite and The Dalles. The Corps is also planning to study surface bypass systems at the other mainstem dams. The Council concurs with the projects identified by the Corps of Engineers for expeditious testing and agrees that the final construction decision on the conventional bypass system at The Dalles should be held pending completion of surface bypass testing at that project.

Spilling water over dams to aid juvenile fish migration

The Council also supports the development of a full-scale monitoring program to ensure that spill is carefully monitored and its effects on dissolved gas levels and fish survival are fully evaluated. Monitoring programs should be in place prior to the provision of additional spill and should include an assessment of impacts on juveniles and adults, sub-lethal impacts, and related resident fish, food-chain and cumulative effects. In addition, it is essential that dissolved-gas abatement technologies -- these include slotted spill gates, baffles and spillway flip lips -- be provided expeditiously so that intentional and unintentional spill does not produce excessive dissolved gas levels and that gas levels can be kept within prevailing state and federal water quality limits. Because no funds are earmarked for gas abatement improvements within the 1996 budget, there will need to be an additional allocation of funds in 1996 to expedite completion of these important facilities, particularly at Bonneville, John Day, The Dalles and Ice Harbor.

Passive Integrated Transponder (PIT) tag detectors

To help accelerate essential evaluations of fish survival in the Columbia River system, it is imperative that PIT tag detectors be installed as rapidly as feasible at the John Day and Bonneville projects. The Council puts highest priority on completion. The Corps proposes a schedule to complete installation of these facilities in 1997 at John Day and 1998 at Bonneville. The Council calls for more rapid installation -- by 1996 at both projects. The Council's interest is in having the detectors in place and functioning as early as possible. We need the capability to gather better information on fish survival through the entire river system -- in the lower river as well as in the upper reaches of the river.

Private contractors

Although it appears that adequate funds are available in 1996 for ongoing mitigation activities, the Council is concerned that the Corps' cost and project construction time estimates are often in excess of comparable estimates from private sector engineering companies. In particular, the time required by the Corps for pre-construction work often appears excessive. Therefore, we believe the Corps should increasingly rely on private firms for planning, engineering and design of these critical fish mitigation facilities.

Bureau of Reclamation

As it has in the past, the Council supports the Bureau's Umatilla River Basin Project. This project involves pumping water from the Columbia River to supply irrigation districts, which then leave water in the Umatilla River in order to rebuild salmon populations. To continue construction of the Umatilla Basin Project, \$7 million is included in the Bureau's Fiscal Year 1996 budget.

Similarly, the Council supports the Bureau's inclusion of \$2 million in the proposed budget to pay for construction of fish diversion screens at the Yakima/Tieton diversion dam. These screens are the last major elements of a group of fish ladders and screen structures built on the Yakima River and its tributaries to improve fish passage conditions.

The Council supports a provision in the Bureau's budget proposal for \$15 million -- compared to \$5.6 million in 1995 -- to proceed with water conservation and water acquisition measures in the Columbia/Snake basins. These measures are designed to benefit fish survival primarily in the Lemhi, Yakima, and Grande Ronde rivers as outlined in the Council's fish and wildlife program. Funds also are included to pay for acquisition of water, in accordance with state water law, to benefit listed stocks in the Snake River Basin. We also support funds to continue the investigation and appraisal of new water storage in the Upper Snake River that could augment flows for fish.

Bonneville Power Administration

The Bonneville Power Administration is the primary implementor of the Council's power plan and fish and wildlife program. The budget proposed by Bonneville for Fiscal Year 1996, comprised of both operating expenses and capital investments, totals \$3.496 billion. This represents less than a 1-percent increase over the current Fiscal Year 1995 budget.

The business plan:

Bonneville is currently developing a business plan which will guide the agency in preparing budgets and priorities for the next six years. The business plan is scheduled for completion in June 1995. This effort is designed to "reinvent" Bonneville and to spur dramatic changes in the way it delivers programs and products. The business plan is aimed at reducing Bonneville costs, unbundling and pricing the agency's products and services, and providing an increased focus on customer service. Because this budget was developed prior to completion of the business plan and the latest round of proposed budget cuts, the 1996 budget and subsequent budgets will change substantially at a later time. As a consequence, it is even more important for Congress, particularly the Appropriations Committees, to continue to provide thorough review and oversight of Bonneville activities.

For capital program investments, Bonneville will rely primarily on debt financing as a means to fund new capital improvements. Bonneville plans to finance most of its capital program in the next six years through bonds issued to the U.S. Treasury, i.e. borrowing authority. Transmission investments make up most of the total with smaller amounts for conservation and fish and wildlife. Based on earlier assumptions, the \$2.5 billion transmission borrowing cap would have been reached at the end of Fiscal Year 1997. The conservation borrowing cap of \$1.25 billion was projected to be reached during Fiscal Year 2002.

The draft business plan, however, also contains several capital financing initiatives designed to make the current borrowing cap last until Fiscal Year 2001. The initiatives are to identify additional reductions in capital spending through the application of the capital budgeting process; revenue finance certain transmission, fish and wildlife capital investments; to the extent allowable, shift costs from the transmission borrowing authority to the conservation borrowing authority; and utilize third-party financing of capital investments when possible. The Council will be meeting with Bonneville to get a better understanding of the implications of these changes for fish and wildlife and conservation borrowing authority.

Treasury debt and repayment:

The administration budget for 1993 and prior years included a proposal to alter Bonneville's approach to repaying its debt for construction of the region's hydropower system. Bonneville's repayment would be accelerated and the terms of repayment would be changed. Congress later blocked this budget proposal, as it did in previous years.

Due to the need to reduce the federal deficit, this repayment acceleration issue may be included in future budgets. Therefore, it could be an issue in the 1997 budget and appropriations process. The Council has vigorously opposed changes in repayment policy in the past, and the Congress has dropped similar proposals from the budget.

To help address this issue, the Council supports legislation to "buy-out" or refinance Bonneville's repayment obligation on appropriated debt. As you know, legislation introduced last year to refinance Bonneville debt was dropped in the House due to budget scoring and bill drafting problems. New legislation has been introduced this year in both the House and Senate. This version seems to correct flaws in the earlier draft. It contains debt refinancing benefits while protecting Bonneville's ability to improve and update the hydroelectric system.

Due to current, relatively low interest rates, there appears to be a window of opportunity to refinance or buy out some of Bonneville's existing appropriated investments. If designed properly, implementation of the proposal could remove the old arguments used to advance repayment reform by refinancing the debt at current market rates. This would help overcome allegations that regional interests are being subsidized, and it would resolve annual battles over the debt repayment issue. It could remove a major source of uncertainty that has been plaguing the region for the past decade.

Government corporation:

Legislation is being proposed in the administration budget to make Bonneville a wholly owned government corporation. This proposal would increase Bonneville's flexibility over personnel, procurement, financial, budget, and litigation functions. It also allows Bonneville to carry out more effectively its existing responsibilities and to compete more effectively in increasingly competitive electric power markets. Bonneville's budget indicates that the agency has "already obtained administrative relief from significant barriers in these areas as a National Performance Review reinvention laboratory. This legislation would make

permanent the relief obtained administratively as well as relieve the agency from additional administrative burdens which are statutory in nature." Bonneville estimates \$30 million in cost savings. The Council held regional hearings last year on two draft corporation bills. Those hearings indicated general support for saving money by changing personnel, procurement and certain civil litigation requirements. There was a lack of regional consensus on whether Bonneville would remain as accountable to the Congress and the region if it becomes a corporation. It is unclear what changes will be made to that bill. The administration is still developing its corporation bill. The Council looks forward to working with Bonneville and the administration to develop a focused bill which fosters greater Bonneville efficiency while maintaining Bonneville's accountability.

Energy Conservation:

The Council's 1991 Northwest Power Plan calls for immediate acquisition of all cost-effective efficiency improvements. The plan identifies at least 1,500 average megawatts of efficiency gains to meet regional load growth over the next decade. Bonneville and its public utility customers' share of the goal is at least 660 megawatts and Bonneville has maintained strong performance in moving toward this long-term objective. Bonneville's draft business plan states that it is committed to acquisition of all cost-effective conservation, and it is proposing a reinvented approach for doing so. The reinvention, however, would have relied on utility responses to tiered rates and new products and services which will not be available during 1996. Bonneville may need to find other mechanisms during 1996 in order to meet its share of the regional conservation goal, and we will work with them to accomplish this objective.

Renewable energy resources

The Bonneville budget proposal also includes funding to continue work with utility partners on four renewable energy projects -- two wind projects and two geothermal plants. Renewable resources are priority resources under the Northwest Power Act and the Council's power plan calls on Bonneville to initiate wind and geothermal demonstration projects. Accordingly, the Council supports continued funding of these priority resources as part of Bonneville's generation portfolio.

Fish and Wildlife:

Bonneville's proposed fish and wildlife budget allocates about \$87 million for fish and wildlife activities. Bonneville has maintained a relatively constant budget for these activities since FY 1992. From this amount, Bonneville must meet its obligation to increase by over \$7 million its annual payment for the interim Washington Wildlife Agreement. It must also fund a number of resident fish mitigation projects, tribal mitigation projects and additional activities to recover listed salmon runs. Bonneville's internal projections indicate that the proposed funding level is not adequate to meet these obligations. The Council will continue to work with Bonneville to identify implementation schedules, prioritize critical activities and find adequate funds to fully implement the Columbia River Basin Fish and Wildlife Program.

The 1996 proposed budget also contains a statement that legislation will be introduced to transfer funding for Mitchell Act hatcheries from the National Marine Fisheries Service to Bonneville starting in 1996. The Council opposes this shift in funding. If this legislation passes, an additional cost of at least \$14.1 million per year will be picked up by Bonneville ratepayers to operate the 25 hatcheries on the lower Columbia River. Currently, \$18.5 million is being spent for Mitchell Act activities, and the region's fish agencies and Indian tribes are calling for increased funding. Ratepayer funding of these activities would overturn the approach used for more than fifty years. It would add to Bonneville's expenses and the agencies' financial stress.

National Marine Fisheries Service

As proposed last year, the Administration budget provides no funding for the Mitchell Act hatcheries -- 25 hatcheries that now release over 100 million juvenile salmon and steelhead into the Columbia system. These hatcheries produce 50-70 percent of the salmon released into the Columbia River. Mitchell Act funds also support a series of fish passage facilities and water diversion screens in the basin. No funds were requested by NMFS in the 1996 budget proposal for any of these activities. The final 1995 budget approved by Congress included \$18.5 million for Mitchell Act activities: \$10.3 million for operation of hatcheries, \$1.7 million for hatchery maintenance, and \$6.5 million for the fish screen program. The Council urges continued support for Mitchell Act hatcheries and the fish screen program in 1996.

Additional funds of \$15 million could be used in 1996 to continue installation of tributary and mainstem diversion screens. As noted in the Council's fish and wildlife program, these screens are vital to fish survival, especially those upriver stocks now listed as endangered. As one of the highest priorities, we need to accelerate the screening of mainstem water diversion intakes and pumps to ensure that migrating juvenile salmon are not killed by being pulled into unscreened or inadequately screened pumping facilities. This problem should be addressed and resolved by the end of 1996.

Mr. Chairman, thank you for this opportunity to share our concerns with you. We sincerely appreciate the thorough consideration that this subcommittee has given to the needs of the Pacific Northwest. Now, if there are questions I would be pleased to answer them.

PREPARED STATEMENT OF PENNY MANDENHALL, PORT MANAGER, PORT OF
TOLEDO, OR

Mr. Chairman:

The Port of Toledo Commission and myself would like to take this opportunity to thank the subcommittee for support and the allotment of funds to accomplish partial dredging of the Yaquina River and Depot Slough.

The Yaquina River has not been dredged since 1969 whereas Depot Slough was dredged in 1981. The planned dredging has allowed the port to move forward on water dependent projects.

We, the Port of Toledo, represent the community of Toledo, Oregon, which is located six road miles and fourteen river miles east and up Yaquina River from Newport, Oregon. Toledo is a timber dependent community and, as a result of the downfall of the timber industry, is a depressed area.

All port are aware of the budgetary pressures under which the appropriations subcommittee, and your colleagues, must operate in considering the spending need of the nation. Claims competing for a fair share of the FY96 budget far exceed what reasonably can be provided.

Ports, large or small, are a valuable asset to any community. They have the capability to diversify from water related projects and promote and develop new businesses to their communities. Also, they can contribute toward national and international trade.

In addition, once the proposed projects are completed and become self-sufficient ports would be in the position to help relieve the government from the continued request for funding.

Ports are able to create jobs, enhance the economic base for their community, put displace workers back into the work force with higher paying jobs and health benefits. Also, they are instrumental in strengthening the family unit.

Oregon ports have voiced concerns on the importance of maintenance dredging for coastal ports as well as for the Columbia River. The Port of Toledo continues to support the federal operations and maintenance dredging program for Oregon ports. A continued O & M program ensures further economic growth of the coastal communities. The port values the subcommittee's ongoing commitment to enhance local economies. The port applauds and supports the FY96 approval for the US Army Corps of Engineers (COE) Operation and Maintenance Programs.

The port would like to express support for maintaining the existing COE minimum dredge fleet, particularly the two hopper dredges, "Yaquina" and "Essayons," on the West coast. The minimum dredge fleet ensures competition, helping to reduce higher dredging costs.

The Port of Toledo comes before this subcommittee to request support for funding to complete the dredging of the Yaquina River and Depot Slough. Requested amount: \$500,000 and also continued funding for the maintenance dredging the COE maintenance channel.

Funding for the Planned dredging was not enough for the complete dredging project due to the constraints with wetlands. The dredge material must be taken out to the ocean for disposal. This is costly. Much of the allotted funds must be used for the transporting of the dredge material.

In addition, I wish to convey to the subcommittee two other proposals that can be accomplished with the completion of the dredging of the Yaquina River and Depot Slough.

1. Construction of the only environmentally approved shipyard for the 185 foot vessels up to 1000 ton in the State of Oregon.

This facility will put approximately 200 displaced workers back on the work force, creating a payroll of approximately \$6 million dollars. The Lumvig oat lift is built in Denmark which would introduce the central Oregon coast to international trade.

2. A 700 foot wharf extension for commercial, fishing and recreations vessels. This facility could accommodate commercial vessels delivering commerce up the river for Georgia Pacific and barge service with the railroad.

These projects will prove to be extremely beneficial for the community and surrounding areas by promoting new national and international businesses, creating approximately 250 jobs, enhancing the economy and generating a \$7. million dollar payroll.

When dredging is complete the traffic that would utilize our facilities is overwhelming. With support of the subcommittee to authorize funding for this project, it would allow the Port of Toledo to move forward, create jobs and enhance the economy of a depressed community.

I thank you for giving me the opportunity to address the subcommittee and present my project.

PREPARED STATEMENT OF MIKE THORNE, EXECUTIVE DIRECTOR, PORT OF PORTLAND

Thank you for the opportunity to testify. The Port of Portland wants to be on record as specifically supporting continued funding of two U.S. Army Corps of Engineers (the Corps) activities of vital importance to our port, our region, and the nation. Ports on the lower Columbia River are thriving seaports with extensive bulk, breakbulk, auto, and container businesses. Together, the lower Columbia River Ports are the nation's third largest export gateway and the foremost wheat exporter, handling more than 30 percent of all exported U.S. wheat. The Port of Portland ranks fourth nationally as an import and export facility for automobiles.

As you know, all of this activity depends greatly on the policies and actions of the Corps. A high priority for our region is the plan to deepen the Columbia River deep-draft channel from 40 feet to 43 feet. This is the Port of Portland's top marine priority. My testimony today will cover the following points:

- Our progress on the feasibility study for the Columbia River channel deepening projects and the need for full funding of the \$900,000 requested in the FY 1996 budget for the study.
- The limits of regional financial support for salmon recovery measures.
- Our strong support for the Corps' hopper dredge fleet.

NAVIGATION: EFFECTIVE ACCESS TO MARKETS

First, let me offer a broader perspective about the significance of cost-effective and efficient ports to our nation's economic well-being. The United States posted its worst-ever trade deficit in 1994: \$166.3 billion. That deficit continued to climb into the first month of 1995, setting a monthly record of \$12.2 billion. As a port system where U.S. exports exceed imports, the ports on the lower Columbia River provide a positive counterbalance to this trade trend. In 1994, exports exceeded imports by more than \$1 billion in value.

I cannot over-emphasize the role of water transportation, integrated with other modes, in handling international commerce for this nation. More than 90 percent of all shipments to and from the United States travel by water. Smoothly functioning seaport operations provide quicker vessel turnaround and assure the existence of competitive facilities for American manufacturers and producers. Maintaining these facilities, by itself, is expensive for local ports. Enhancing facilities and keeping them competitive with other ports throughout the world requires long-term planning and enormous capital investment by ports.

The Port of Portland has been and continues to be engaged in extensive marine terminal improvements. We currently are designing, financing, and building improvements at two of our marine terminals and we have plans for construction of an entirely new facility at a cost of more than \$200 million. We also bear the cost and regulatory responsibility for dredging at our berths and docks. We work hard to assure that our terminal customers have first-rate facilities, from cranes and storage facilities to excellent rail and truck access.

As the country signs more new free trade agreements, ports will have an even larger role in this new trade environment. Sound investments in navigation translate into jobs, opportunity, and economic expansion. Ports across the country are partners with the federal government in efforts to improve the navigation system itself. We are doing our part, but we cannot do all that is needed. I believe the federal government must continue to play a significant vote.

As Congress focuses on deficit reduction and economic revitalization and growth, it must not lose sight of the importance of a healthy and efficient transportation system. In addition to being key links in the transportation system, marine ports are economic engines that create jobs, stimulate private business, promote growth and competition, and strengthen the economy. Investments in seaports, through federal and local user-fee funded development programs, will return dividends to producers, shippers, and the public.

COLUMBIA RIVER CHANNEL DEEPENING

Let me begin by expressing our appreciation for this subcommittee's past assistance on the Columbia River Channel Improvement feasibility study. Two years ago, your members agreed to language directing the Corps to reduce the scope, cost, and timetable for the feasibility study. The Corps has responded very well to this directive. The Corps reduced the estimated cost of the study from nearly \$10 million to \$6.1 million. We began the study last summer, based on the lower cost estimate, bringing significant savings to all taxpayers and the local sponsor ports.

Our top priority is to assure that this important transportation and trade center can continue to provide the nation's producers with cost-effective access to the rapidly growing Pacific Rim markets. To do so, the 100 miles of river channel between our terminals and the Pacific Ocean need to be deepened and maintained at the proposed 43-foot level. Thus, we are requesting full funding for the Corps capability in this year's bill, \$900,000 in the President's budget for fiscal year 1996, to continue the feasibility study process.

At 40 feet, the current Columbia River channel depth is adequate to handle most vessels calling on the river. Yet, we are very much aware that virtually every major ocean carrier of containerized or bulk cargo serving Pacific Coast ports is building "post-Panamax" vessels requiring depths in excess of our existing channel. Our customers know it is essential for the ports on the lower Columbia River to be able to serve this new class of ship. Recognition of this critical requirement is driving our plans to deepen and maintain the channel at 43 feet.

Mr. Chairman, completing our project is more than a dredging issue. It is a national transportation and competitiveness issue. Ports on the lower Columbia River are transshipment centers for export cargo moving on the inland waterway, rail and highway systems. Yet our region's ability to make sure the deep-draft channel functions well with the rest of the system is minimal. These critical miles, from our docks to open water, are proving to be the most difficult miles to improve. Channel improvements have become increasingly costly and time consuming to complete, based on the reports we receive from other projects around the country. Even maintenance of existing approved channel depths has been difficult in many cases.

Our appeal today for your assistance is based on regional and national interests. For producers and shippers throughout the Pacific Northwest and around the country, the Columbia River system is an enormous asset. The system faces unprecedented challenges, and we seek your leadership in helping rise to meet those challenges.

In the interest of time, we will not enumerate all of those challenges here today. But I would like to focus on two briefly, as they relate to the need to deepen the channel in the Columbia River. First is the overall growth in commerce on the river system. At Portland, that total cargo base is made up of grains, mineral bulk commodities, breakbulk, containers, automobiles, and other cargo operations.

Led by large volumes of bulk cargo and record-breaking growth in container volumes, the Columbia River system is handling more cargo every year. Grain volumes through Portland alone rose by 15.6 percent over the previous year. Container growth at Portland has led all West Coast seaports for the last three years and that category shot up 32.8 percent in 1994. These statistics are important from a national perspective because these cargoes come from producers around the nation. Wheat shipments, to name one example, originate in the Dakotas, Nebraska, and Kansas. Corn handled at Kalama, Washington, is produced on farms in Iowa, Nebraska, Minnesota, and the Dakotas.

In the auto shipment business, import cars are distributed to 40 states from Portland. And exports, autos built in the U.S. for shipment to countries throughout the Pacific Rim, make up an increasingly significant segment of the business. These export cars mean jobs in plants in Kentucky and Ohio. In summary, you can see our ports serve as the gateway for products from around the country.

This leads to challenge number two. To handle this growth in cargo, Portland and other lower Columbia River ports are being served by larger ships with greater capacity and deeper draft. As these ships call more frequently, the sharp increase in vessel drafts is pushing the need for improvements to the deep-draft channel in the Columbia.

Vessels with drafts deeper than the channel can accommodate do call at Columbia River ports. And they often leave with a partial load at less than full draft to avoid any navigation problems. This "light loading" means total capacity of the ship is not used and cargo is left behind at the docks. To put this cost into perspective, let me cite a couple of examples.

Each foot of draft equates to approximately 2,000 tons of cargo. For the new larger class of vessels, the tonnage left behind is higher, as much as 2,400 tons. On a shipment of wheat at current prices, for example, cargo left behind equals nearly \$300,000 in value for each foot of draft. For a container vessel of the new R Class, the cargo value left on the docks is \$3 million per foot of draft. These numbers provide graphic evidence of how much more efficient a deeper channel will be for shippers and the shipping lines.

The Port of Portland, in its management of the transportation system with partner ports on the lower river, can manage most of these changes very effectively. With our own resources, we are adding crane capacity, expanding our rail systems, improving truck capacity and flow, and acquiring new facilities for further expansion.

Where we seek this committee's leadership is in providing the navigation improvements themselves--the piece of the transportation picture that has historically been a federal responsibility. Federal support for navigation, the heart of the Corps' mission, is central to achievement of the nation's important economic and international trade goals. We are among our region's most vocal advocates for national policies that will enable the Corps to carry out its mission decisively and economically. We recognize that this also requires federal financial obligations, but we believe that user fees and cost-sharing have made local ports much more reliable partners in these endeavors.

SALMON RECOVERY: THE REGION'S ABILITY TO PAY HAS REACHED ITS LIMIT

Annual salmon recovery costs to the region's utility ratepayers and the Bonneville Power Administration have increased from \$30 million in 1981 to more than \$500 million a year. These increases have made two things increasingly clear:

1. The effectiveness of salmon recovery efforts must be closely monitored and evaluated objectively. We need fact, not theory, to help salmon.
2. Neither Bonneville ratepayers nor others in the region have the ability to pay more for continually growing salmon programs.

HOPPER DREDGE FLEET: BENEFITS TO MANY REGIONS

Mr Chairman, as you and members of your subcommittee know, ports and their shipping clients are really customers of the Corps and its hopper dredge fleet. We pay for this service through the Harbor Maintenance fees charged on cargo. As customers of the federal fleet, several things are important to us:

1. Safety in navigation.
2. Timely service to keep channels of trade open.
3. Economical, cost-effective service.

I would note that ports across the country can be fierce critics of the service we receive from the Corps. Yet, in the case of the hopper dredge fleet, we are generally very satisfied customers. The reasons: the Corps' fleet meets the three needs listed above on a consistent basis.

I must tell you, frankly, we are skeptical that acceptable levels of competition exist in the private hopper dredge industry. In the absence of robust price competition, we continue to believe costs to dredging customers--the ports, shippers, and Congress--are likely to increase. In other words, having an operational Corps fleet gives Ports and Congress a very necessary competitive element in the dredging picture. In the Pacific Northwest, in particular, the private fleet is very limited in number, leaving fewer competitive pressures to keep costs in check.

How well we look after and plan for the smooth movement of goods and freight into and out of this nation is dependent on the Corps' hopper dredges. Benefits from the work accomplished by these dredges are felt well beyond our region. Goods originating from the East, the Midwest, the states bordering Canada, and the entire Pacific Northwest benefit from timely navigation assistance from the Corps' dredge fleet.

The Corps' hopper dredge fleet is essential to our ability to compete. These dredges, in our region the YAQUINA and the ESSAYONS, were built specifically for the work they do. They do

this job well. They operate in rough conditions along the Oregon and Washington coasts. Their mobility has them at the scene of an emergency quickly, a crucial feature in our region where the presence of the private dredge fleet is limited. A review of past bidding for Corps work shows the limited number of bids received. At times, the private fleet has not performed satisfactorily. Breakdowns and associated delays have meant some projects were not maintained in a timely fashion. Recent examples include the Chetco, Rogue, and Southern Oregon Coastal projects.

As you know, Congress has set aside 7.5 million cubic yards of work for the private sector in each of the last two years. This has been accomplished by taking the work out of the allotment normally handled by the Corps' minimum fleet. Before taking this step again, Congress should review the experience of this set-aside. Determine how many bids there were on each contract. Review these bids against the government estimate. Ask whether there were cost overruns or project delays. I urge Congress to look at these questions before making further major changes in the operation of the hopper dredge fleet. I urge Congress to reconsider whether, in view of cost and dredging efficiency, the 7.5 million cubic yard set-aside ought to be eliminated.

CONCLUSION

Mr. Chairman, the Port of Portland appreciates the opportunity to share our views. We pledge our assistance on transportation issues facing Congress this year, particularly as they relate to marine issues in your subcommittee. As local project sponsors, we need your assistance in return. The Port of Portland urges you to continue annual funding for the feasibility study for the Columbia River channel, and we urge you to continue funding a fully operational Corps' hopper dredge fleet.

Thank you.

PREPARED STATEMENT OF WILBUR E. TERNYIK, COMMISSION PRESIDENT, PORT OF SIUSLAW, OR

Mr. Chairman:

My name is Wilbur E. Ternyik, I am Commission President, Port of Siuslaw, Oregon and Chairman of the Oregon Coastal Ports Maintenance Dredging Committee established by the Oregon Coastal Zone Management Association, Inc. The Association membership includes over forty local governments along the Oregon Coast, including the seven coastal counties, soil and water conservation districts, cities, and ports. Other coastal ports representatives from Oregon are also in attendance and are offering testimony today.

As Chairman of the Committee, I support the Administration's proposed Corps of Engineers, Portland District operation and maintenance budget for Fiscal Year 1996. It is the collective view of Committee members that this operation and maintenance budget will be adequate for providing basic channel clearing and sediment removal. Any corps service restrictions due to budget reductions below the proposed budget will seriously affect the navigability of our ports.

We wish to comment on the February 14, 1995 testimony of Dr. John H. Zirschky, Acting Assistant Secretary of the Army (Civil Works) before the Senate Subcommittee on Transportation and Infrastructure on the Water Resources Development Act of 1995.

Dr. Zirschky stated that the Corps "Will discontinue Federal maintenance of harbors that do not generate significant commercial navigation activity and, therefore, do not produce contributions to

the Harbor Maintenance Trust Fund". Investigations made by an Association sponsored 1991 study (Strategies for Responding to Reduced Federal Funding of Annual Maintenance Dredging) showed that Oregon's ports have high commercial navigation activity and waterborne commerce value, but it is from commercial fishing activities with lower amounts of tonnage. Therefore, contributions to the Trust Fund from Oregon ports do not adequately reflect the need for maintenance dredging. Just two species of our abundant fish resources can be used as examples of where Corps maintenance has made a difference to the national economy. For the last three years, there have been annual sales of about \$11.5 million in Pacific whiting surimi sold to Japan and sales of about \$3.5 million in sea urchin uni harvested and processed at Port Orford for sales to Japan. Oregon's ports have a demonstrated national significance to the U.S. economy for the efficiency and effectiveness they provide for strengthening our international trade transportation requirements.

An adequate multi-year Corps of Engineers Operations & Maintenance dredging budget should be continued to protect the past infrastructure investments in authorized waterway projects and to be consistent with the other Federal economic development programs. To abandon coastal ports with this new Corps policy would severely impact these smaller communities.

The possible total loss of Corps of Engineers maintenance dredging under the Zirschky proposed operations policy changes, coupled with proposed downsizing of Coast Guard operations is a one-two punch that will result in the death of Oregon's small coastal ports. We recognize that U.S. Coast Guard operations budget is reviewed and approved by the Subcommittee on Transportation, however, the ocean entrance dredging and Coast Guard operations are clearly inter-locked.

We specifically express our united strong support for the continuance of Corps of Engineers Continuing Authorities Program. This program has been a vital factor in accomplishing a variety of small projects needed in all ports, especially through Section 14, Section 103, Section 107 and Section 111 of the River and Harbor Act and Section 1135 of the Water Resources Development Act. These programs need to be reauthorized to continue the planning and technical assistance needed for our ports, waterway and navigation improvements. There have been many worthwhile projects from these sections along the Oregon Coast, recent examples being the protection of the Winchester Bay West Spit Shoreline and the Port of Newport Breakwater Repair. Shoreline protection requires ongoing maintenance to prevent catastrophic failure of our system of navigable waterways.

I would also like to mention two upcoming navigation projects which are fully supported by all of Oregon's ports. These are the Columbia River Channel Deepening Project and the Coos Bay Channel Deepening Project. Both projects are critical to improving Oregon's position for meeting wood market shipping requirements. The economic spin-off effects to the regions smaller ports will follow the competitive positioning allowed by these waterway improvement projects. We urge Congress to pass WRD A-95 this year.

We would like to voice our strong support for the continued Corps of Engineers dredges used in the Pacific Northwest: YAQUINA and ESSAYONS. These vessels are crucial to maintaining navigation of our coastal port's channels and harbors. We commend the Port District Corps of Engineers staff for their flexible scheduling of those dredges. Their ability to perform our regular dredging and still maintain instant response to emergency situations is essential. There simply is no other capability that can provide this vital service with timely emergency response and still remain cost effective. We are out of business without this type of service.

The Oregon Coastal Ports Maintenance Dredging Committee, comprised of all fourteen (14) coastal ports, continues to meet. We are submitting to you the latest update to the Committee's publication "Navigation and Other Activities on Coastal Waterways and Harbors in Oregon and the Columbia River". This cooperative effort has resulted in a unified stand on Federal and State proposals impacting our port operations. Our thanks to Senator Mark Hatfield for urging this approach.

We again extend our sincere appreciation for this Committee's careful examination of our budget request for Federal funding that allows the coastal ports of Oregon to realize the benefits that accrue as a result of earlier channel and jetty improvement projects approved by this Committee. We firmly believe that the current system Congress uses to examine and to fund these coastal projects is working well and should be continued in the future.

Thank you for your continued and past support for Oregon's coastal ports and waterways.

LETTER FROM F.E. KNIGHT, PRESIDENT, PORT OF NEHALEM, WHEELER, OR

Senator Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
Committee on Appropriations
United States Senate
Washington, DC 20510

March 24, 1995

Dear Mr. Chairman:

The Port of Nehalem goes on record here in support of the \$5,000,000 for Navigation Projects (Section 107) under the "Continuing Authorities Projects Not Requiring Specific Legislation" included in the Fiscal Year 1996 Civil Works Budget for the US Army Corps of Engineers.

The Corps' Portland District had a "107" study project on the Nehalem River placed in an inactive status in 1983 after the Corps' favorable finding of a four-foot-deep channel at MLLW. Any further action on this navigation project hinges directly on the issuance of dredge and fill permits by the State of Oregon's Division of State Lands and Corps of Engineers Portland District for a major harbor and marina development on the Nehalem River.

Both the Oregon Division for State Lands and the Corps of Engineers Portland District have consistently refused issuance of the dredge and fill permits for the proposed major harbor and marina development on the Nehalem River, although the developer has expended over \$200,000 for legal and other professional fees alone, and for providing mitigation of the wetland area for which the dredge and fill permits are requested. Mitigation is the replacement of the wetland lost in the dredging and filling of the proposed harbor and marina.

We are seriously concerned, and oppose, the statement of John H. Zirschky, Acting Secretary of the Army (Civil Works), before the House Appropriation Subcommittee on Energy and Water Development on February 21, 1995, in discussing Corps of Engineers proposals when he said: "...Included among measures to achieve savings after FY 1996 are the following: termination of funding for new projects under the Continuing Authorities Program, beginning in FY 1997; working with appropriate local authorities to gradually turn over the operation and maintenance of existing local protection reservoirs and the maintenance of harbors that do not contribute to the Harbor Maintenance Trust Fund..."

The Corps of Engineers proposal to eliminate the Continuing Authorities Program and the operation and maintenance of Congressionally authorized navigation projects could be the death knell of small ports with limited financial resources and without adequate professional staff.

We respectfully request that this letter be incorporated in the hearing record on the Corps of Engineers proposed budget fiscal year 1996. Thank you.

Sincerely,
PORT OF NEHALEM

ORIGINAL SIGNED BY F.E. KNIGHT

F.E. Knight
President

Comments?

Please mail your written comments and suggestions by March 31, 1995. So that we may efficiently handle the many responses with accuracy and speed, please fold this page in half and send to the address listed on the opposite side.

Your name was among more than one thousand on the mailing list used to distribute this call for comments. Because of your past interest and involvement in natural resources issues, we wish to keep you informed and updated on any changes and events occurring in this activity. To keep our mailing list current, please complete the information below and mail this page back by March 31, 1995.

March 24, 1995

(Please Type or Print)

Name: F.E. (Shang) Knight

Title: President

Affiliate: Port of Nehalem

Address: P.O. Box 238

City, State, Zip: Wheeler, Oregon 97147

- Please check appropriate boxes -

- Please remove my name from your mailing list
- Please update your files with the data provided
- Please send a copy of the Draft EIS when available.
- Please send just the summary of the Draft EIS.

Comments: To Paula Levin, CBRA EIS Team Leader, US Fish and Wildlife Service, 911 NE 11th Avenue, Portland, Oregon 97223-4181. This is in response to your "Coastal Barrier Update," February, 1995, and the Fish and Wildlife Service, Interior, Action Notice, in the Federal Register, Vol. 60, No. 26, Wednesday, February 8, 1995., Notices, of the "Intent to Prepare a Programmatic Environmental Impact Statement for the Application of the Coastal Barrier Resources Act to the Pacific Coast", as it applies to Nehalem Bay (Tillamook County), Oregon. In response to the Federal Register request for submission of recommendations on the scope of the issues to be added in the Programmatic Environmental Impact Statement (EIS) we recommend, and request, that the scope of the issues in the EIS include an analysis and documentation of the findings for the Fish and Wildlife Service proposed inclusion of Nehalem Bay in the Coastal Barrier Resources System. The EIS relating to Nehalem Bay should respond specifically to the three basic purposes of the Coastal Barrier Resources Act of 1982, as amended, which are (1) loss of human life, (2) wasteful expenditures of Federal revenues, and (3) damage to fish, wildlife, and other natural resources. The Port of Nehalem sees no need for the Fish and Wildlife proposing the inclusion of Nehalem Bay into the Coastal Barrier Resources System as the Port has no record of any loss of human life, wasteful expenditure of Federal revenues, or damage to fish, wildlife, and other natural resources resulting from coastal storms or erosion which the coastal barrier proposes to protect. Our letter of March 24, 1994, on the subject, to Mr. Gerry Jackson, Assistant Regional Director, Ecological Services, U.S. Fish and Wildlife Service, Portland, Oregon, and its attachments, is to be made a part of this response.

PREPARED STATEMENT OF THE PORT OF BROOKINGS HARBOR, CURRY COUNTY, OR

Mr. Chairman:

The Port of Brookings Harbor, a medium size port authority located in Curry County, Oregon, appreciates this opportunity to comment on critical Corps of Engineer programs that are vital to our existence as an economic development agency in Southern Oregon. This Port is not just moving commercial fish products. It is the key element in the economic mix and fill in the development niches of tourism, recreation, industrial development and small business assistance. Without the annual maintenance dredging appropriations, the Continuing Authority Program, and the Minimum Dredge Fleet, the Port of Brookings Harbor could not continue these aggressive development strategies.

Changing the mission of the Corps of Engineers would mean dumping the cost on states or wiping out dozens of small communities and thousands of jobs. It is our understanding that local flood control, inland port channel maintenance and small port navigation projects will no longer

be the business of the federal government under a new Administration plan for the US Army Corps of Engineers.

The plan proposed in the 1995-96 federal budget, will limit the Corps' participation in projects to only those of "national significance". The restructured Corps' mission would be limited to commercial navigation, interstate flood control, providing technical assistance to states and tribes, and environmental restoration.

Under the proposal, ports that don't pay into the Harbor Maintenance Trust Fund would not receive federal operation and maintenance (O&M) dredging, which is paid for out of the fund, thus eliminating small ports. The revised Corps' mission would also prohibit participation in future small projects for flood control, navigation, emergency stream bank erosion and beach erosion control under the Continue Authorities Program. Small environmental projects would continue.

Any changes in the Corps' current mission would effectively close down our community. Our channel would silt up within three years. The Port of Brookings Harbor generates millions in direct revenue from high valued commercial fish products into the community. This also directly relates to recreational boating activity of which the Port of Brookings Harbor enjoys the distinction of being the busiest recreational Port on the Oregon Coast. The total impact on the Chetco River area would be a loss that would ripple right through the community. The Chetco channel project may be small by comparison, but a loss of this project will have a substantial impact on our small coastal community. O&M dredging of coastal channels is a service provided by the federal government that has a quantifiable economic impact of more than twenty-seven to one for every dollar spent and provides a good return on the federal government's investment.

The Port of Brookings Harbor is a classic example of a shallow draft Oregon Coastal Port where, because of its' channel and narrow rocky entrance, the ability to perform the channel maintenance is based to a large degree on daily weather and equipment compatibility. The Corps of Engineers has proven time and time again to be flexible, responsive and concerned with the special navigational needs of shallow draft Port Authorities. The Corps' high level of service oriented programs and the Minimum Dredge Fleet is a crucial element in the continues viability of Coastal Oregon Ports.

In closing, the Port of Brookings Harbor extends its' appreciation to the committee for their examination of our strong support for the Operations and Maintenance Federal funding, the Continuing Authorities Program and the Corps of Engineers' Minimum Dredge Fleet.

Thank-you.

PREPARED STATEMENT OF ALLAN RUMBAUGH, GENERAL MANAGER,
OREGON INTERNATIONAL PORT OF COOS BAY

The Oregon International Port of Coos Bay appreciates the opportunity to present to the Committee our views on several appropriations issues of great importance to our state and region.

The Port of Coos Bay, the second largest port in the State of Oregon with over 4 million tons of commerce annually, includes two terminals owned by our public agency and 10 privately owned deep-draft terminals. Our port is an active member of the Pacific Northwest Waterways Association, and works diligently to promote improvements in transportation infrastructure that will benefit our state and national economies. We have a strong commitment to constructing a navigation project in Coos Bay whose study was authorized by Congress 12 years ago. We also add our support on several other issues important to us and the Pacific Northwest.

COOS BAY DEEP-DRAFT CHANNEL DEEPENING.

The 35-foot draft Coos Bay channel enables the efficient export of a variety of wood products, our traditional industry. More recently, the Port has begun diversifying, and now exports more than 300,000 tons per year of copper concentrate from Utah, and also imports nickel ore from New Caledonia that is trucked east 60 miles to the only operating nickel smelter in the United States. Draft limitations in the channel cause delays in vessel movements as vessels await proper tides. In 1986, the Port of Coos Bay and the Corps of Engineers began a feasibility study that was completed and approved in 1994, and which recommends the deepening of the Coos Bay channel by two more feet.

Along with other areas of the country, we were disappointed last year that a Water Resources Development Act for 1994 failed to pass in the Senate. We appreciate the Committee's previous support for this project, and ask the Committee to support the forthcoming authorization and to appropriate funding for the project at the earliest possible date.

Because WRDA 94 did not pass, the additional one-year delay in project construction adds another \$1 million this year to the project cost and means another \$2 million in lost annual benefits. These amounts may seem small at the national level, but they equal our Port agency's annual gross income from operations and taxes combined. These added delay costs would jeopardize our ability to continue with the project, were it not for the continuing commitment and funding from the State of Oregon.

From our local perspective, we feel a sense of frustration that our commitment to the federal water development process is not shared as strongly by our federal partner. Since a study was first authorized by Congress twelve years ago, we have dutifully followed the guidelines laid down by Congress to the letter, and have entered binding commitments with the Federal government for that purpose. We have shared equally with the Corps of Engineers in the cost of the \$1,000,000 feasibility study, thanks primarily to funding support by the State of Oregon and its Economic Development Department. Now those twelve years of effort and our state and local financial investment are in jeopardy without the passage of a water resources bill.

We realize the difficult decisions that Congress must make as you continue the important job of reducing the federal budget deficit. As this Committee looks for ways to measure the value of programs that provide supportive federal funding for projects, we urge that at least two questions be asked:

First, does the local area or state believe strongly enough in the project that it has committed to provide a significant share of funding for project costs?

Second, after public funds are spent, will something of lasting value remain that will help catalyze private sector economic activity and investment?

In our view, navigation improvement projects through the Water Resources Development Act pass those tests handily. Projects such as the Coos Bay channel deepening and the lower Columbia River deepening have significant funding support from the State of Oregon. Moreover, by building the nation's infrastructure, these public projects will spur additional private sector business activity and economic growth.

COLUMBIA RIVER DEEP-DRAFT CHANNEL DEEPENING

The Columbia River channel is an economic engine that powers economic development throughout the Pacific Northwest, and its continued improvement is vital to enable it to meet the needs of global commerce. Based on our experiences with cost escalations in the early stages of our study, we have supported program changes that would protect

local sponsors from excessive study cost increases, and we urge the Committee to support the funding request for the Corps of Engineers portion of this study.

MINIMUM DREDGE FLEET

We strongly support the continued presence of the Corps dredge fleet, and urge the Committee not to reduce the size of the Corps dredge fleet, or to cut back the days of service of these four Corps dredges. Our community places great value on partnerships between the public and private sectors as the best way of getting jobs done most effectively. Each sector brings to a given situation its own particular skills and experiential knowledge, and the combination produces something greater than each could do independently. As we see it, the public and private dredge fleets complement one another, and both are necessary to continue the efficient and timely dredging of the nation's ports.

Some of the dredging in Coos Bay is already performed satisfactorily by the private fleet through Corps of Engineers contracting. The Corps dredges complement private dredging by providing rapid response in emergencies when dangerous spot shoaling must be removed immediately, and it also adds to the total capacity of the nation's dredge fleet to meet all dredging requirements. Finally, the presence of a minimum dredge fleet promotes the competitive bidding process in an industry with very few firms, helping to ensure that the public receives the most value for its money.

OPERATIONS AND MAINTENANCE FOR NAVIGATION

Our port and its region, together with many smaller ports along the Oregon coast, are deeply troubled by recent proposals within the Administration to make drastic policy changes that would take operations and maintenance (O & M) dredging funds away from all but ports of "national significance." We urge the Committee to reject these proposals, and to provide full funding for O & M dredging for the Corps of Engineers.

For many communities, the port and its harbor are the centerpiece of the local economy. Removal of dredging funds would render many of these harbors unusable in a few years. Further, when combined with recently proposed cuts in public safety coverage by the U.S. Coast Guard, the effects will be devastating on many smaller communities and their ports. From our perspective, what should be "of national significance" is the maintenance of healthy and viable communities. In that sense, dredging smaller ports is as important and appropriate as dredging larger ports. Eliminating the program would provide great harm with no real cost savings, as other entitlement costs could climb.

CONCLUSION

We thank the Committee for the opportunity to offer testimony about projects and programs of vital interest to our state and region.

LETTERS FROM THE PUBLIC UTILITY DISTRICT NO. 1 OF DOUGLAS COUNTY,
EAST WENATCHEE, WA

Honorable Senator Mark Hatfield
Chairman
Senate Appropriations Committee
Room S-128
Washington, D.C. 20510

March 10, 1995

Subject: BPA - ESA Funding Cap

Dear Senator Hatfield:

Please receive the following into the record of hearings set for March 15, 1995.

We are Public Utility District No. 1 of Douglas County of Washington State. We are located in the 4th Congressional District of Washington and operate the 840 megawatt Wells Hydroelectric Project immediately downstream from the U.S. Corps of Engineers' Chief Joseph Project on the Columbia River. We are a non-federal project licensed by the Federal Energy Regulatory Commission (FERC).

In a January 17, 1995 letter to you and other members of the Northwest delegation (copy attached), we outlined a positive program to help fish while preserving some degree of reliable generation. As you remember, the bypass system at the Wells Project produces a downstream fish survival rate of approximately 99%. You can also find a number of positive references to our project and fish bypass system in the NMFS Snake River Salmon Recovery Team report (Bevan Plan). We told you about our long-term hatchery programs, fish settlement agreement and continuing efforts to develop a Habitat Conservation Plan to improve conditions for salmon and steelhead. We have managed to achieve these positive results for fish, while in full compliance with the mitigative requirements of our FERC license, without any agency financial support.

Given what we have accomplished and plan to accomplish in the future, it is ironic that we see calls for increased releases of stored water and financial caps on federal (but not non-federal) project fish expenditures. We are not asking for subsidies or special favors. What we do ask, though, is that you and others consider the circumstance in which our reward for good stewardship appears to be a penalty of increasing spring and summer flows beyond normal operating conditions. These flows only serve to unnecessarily affect project and reservoir operating efficiency. All of this federal action is taken without proven benefit to the fisheries resource. We recognize that juvenile salmon and steelhead require a certain level of flow to successfully initiate and complete their migration. Flows beyond this level provide no additional benefit. This all brings us to the following question:

- Rather than a financial cap, why not cap flows. The timing of flows for fish seems to be the root cause of excessive BPA and non-federal operating cost.

As you know there seems to be very little consensus in the scientific community concerning the value (if any) and quantity of the extra flows that are needed to help the

fish. In order to put large flow augmentation into perspective, the 1994 biological opinion resulted in taking 11.4 million acre feet of water out of the Columbia/Snake river system in about a four month period. 11.4 million acre feet of water is 3.716 trillion gallons. It defies imagination but this is enough water to give every human being on this planet a gallon of water every day for 675 days or 1.8 years. All of this leads one to begin questioning the value of ever increasing flows relative to salmon survival. Have we gone beyond reason and common sense?

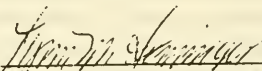
Doesn't it seem logical that if a reasonable degree of assured operating flexibility is provided to the hydro system, federal and non-federal, that it will more likely be able to support its stewardship obligations without financial demands on others? It is difficult to imagine that emphasis on money and who pays (ratepayers, taxpayers or both) will result in meaningful resolution of the real fish/power issues. Further, as long as the issue is money, the OMB, administration and congressional debate will continue to evolve.

At our project, with a long-term fish settlement in place, we continue to host regular coordinating meetings with the agencies and tribes which culminate in reports to the

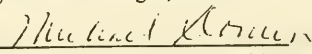
FERC detailing our program performance. Why can't a similar process with congressional and administrative policy direction and support work for our region? What the region seems to need now is leadership (similar to yours during the Salmon Summit) to bring the various parties to the table and provide the tools and mechanism for resolving our problem locally. We are convinced that government, science and business, given the right mechanism and policy direction, can preserve the hydro system and execute good environmental stewardship. We would be more than happy to demonstrate to you (only as a matter of illustration), how we have and are trying to accomplish our goals here at Douglas. We don't have all the answers but maybe there is some merit in what we are doing.

It is our belief that the Northwest Regional Power Act and the Council as it is now structured is not the proper vehicle of resolution because there is too much political posturing. The region needs to stop spending its time and money trying to fix blame and start working cooperatively on resolution. Surely we are intelligent enough to generate power and protect fish at the same time. This whole process begs for leadership and moderation on all sides. We believe that such a potential currently exists if we pursue it. Thanks for your time and consideration.

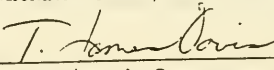
Very truly yours,



 Lynn M. Heminger, President



 Michael Doneen, Vice President



 T. James Davis, Secretary

January 17, 1995

The Honorable Slade Gorton
The United States Senate
730 Hart Senate Office Building
Washington, D.C. 20510

The Honorable Patty Murray
Senate Dirksen Office Bldg. B-34
Washington, D.C. 20510

The Honorable Richard Hastings
1229 Longworth House Office Building
Washington, D.C. 20515

Subject: Reauthorization of the Endangered Species Act

Dear Senators Gorton, Murray and Representative Hastings:

We are Public Utility District No. 1 of Douglas County, located in the 4th congressional district of Washington state. We operate the 840 megawatt Wells hydroelectric generating plant on the Columbia River, immediately downstream from the federal multipurpose projects, Chief Joseph and Grand Coulee Dams.

The Wells Hydroelectric Project serves all of the needs of its customers in Douglas County from 22.9% of its output. In addition to serving the needs of Douglas County, the Wells Project currently delivers 34.8% of the project output to Puget Sound Power and Light; 7.7% to Pacific Power and Light; 22.7% to Portland General Electric; 3.9% to Washington Water Power Company and 8.0% to Public Utility District No. 1 of Okanogan County, Washington. Energy delivered to the private companies serves varying portions of their loads in the four northwest states of Washington, Oregon, Idaho and Montana. The energy delivered to PUD No. 1 of Okanogan County provides almost half of its needs.

In conjunction with generating electrical energy at the Wells Project, we operate a very efficient bypass system for small anadromous salmon as they migrate downstream toward the ocean. The bypass system steers 89% of these migrating salmon past the dam without entering the water intakes for generator turbines. A percentage of those fish that errantly enter the turbine water intakes also survive. This survival added to the bypass survival produces a downstream fish survival rate of approximately 99%.

In addition to the fish bypass system, we have developed a new state of the science hatchery which is designed to supplement the wild spring Chinook Salmon runs while at the same time protecting genetic diversity. This facility received the 1994 Award of Merit from the American Association of Conservation Engineers. We are also working on a similar program for Sockeye Salmon. The bypass, hatchery and other fish studies and programs are all part of a long term fish agreement that has been endorsed by National Marine Fisheries, U.S. Fish and Wildlife Services, Washington and Oregon Fish and Wildlife Services, the Yakama, Umatilla and

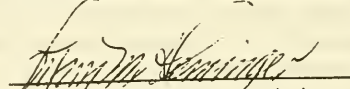
Colville Indian tribes. The agreement has also been approved by the Federal Energy Regulatory Commission. We have labored nearly 20 years to achieve these goals.

We are now involved with voluntary measures to develop a Habitat Conservation Program in an effort to restore and improve conditions for salmon in our licensed part of the river and its tributaries. In addition to programs for fish we have donated 8,000 acres for game habitat and approximately 350 acres for parks and recreation.

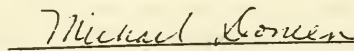
The purpose of the aforementioned information is to impress upon the reader that we have not and are not trying to avoid environmental stewardship by now advocating that reasonable and responsible changes be made in the Endangered Species Act (ESA). Many would have you believe the unsupported charges that utilities are uncaring about environmental concerns. We simply ask that the Endangered Species Act be amended and the amendments guarantee that scientific fact, economic feasibility and common sense be the ultimate test of implementation and enforceability. Administrative decisions which do not meet and balance these tests should be prohibited. Heretofore, these tests have not always been part of the process.

If you are interested in more information about our concerns and accomplishments, please call or write. We have the biological and economic staff resources to respond to your questions or offer testimony.

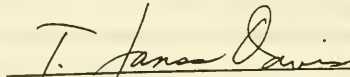
Sincerely,



 Lynn M. Heminger, Commissioner



 Michael Doneen, Commissioner



 T. James Davis, Commissioner

**PREPARED STATEMENT OF GLENN VANSELOW, PH.D., EXECUTIVE
 DIRECTOR, PACIFIC NORTHWEST WATERWAYS ASSOCIATION**

The Pacific Northwest Waterways Association appreciates the opportunity to present its views on appropriations issues to the Committee. PNWA membership includes 140 organizations and individuals in Oregon, Washington, and Idaho. PNWA represents

- Public port authorities on the Pacific Coast, Puget Sound, and Columbia/Snake River System,
- Public utility districts, investor-owned utilities, and direct service industries.
- Irrigation districts, grain growers and upriver and export elevator companies.

- Major manufacturers in the region,
- Forest products industry manufacturers and shippers, and
- Tug and barge operators, steamship operators, consulting engineers, and others involved in economic development throughout the Pacific Northwest

PNWA has a long history of working with the Committee and the U.S. Army Corps of Engineers on projects of regional and national importance, sharing the challenge to maintain and develop our transportation infrastructure. Our members wish to thank the Committee for its support of Pacific Northwest transportation, hydropower and salmon enhancement programs and projects which are included in the Administration's budget request.

OPERATIONS AND MAINTENANCE FOR NAVIGATION

We ask the Committee for full funding for ongoing operations and maintenance (O&M) of the federally authorized navigation channels in the Columbia/Snake river system, the Washington and Oregon coastal ports, and Puget Sound. Although funding for the O&M budget has remained flat in recent years, the cost of completing this work is rising due to a greater emphasis on environmental protection. Fully funding O&M is a cost-efficient means of fully utilizing the federal government's investment in channel operations.

We are, however, deeply disturbed by proposals we are hearing from some parties testifying before Congress and from within the Administration that would drastically reduce Corps of Engineers funding for basic services, including the maintenance of both inland waterways and deep draft ports and harbors. We urge the Committee to resist these proposals. The Corps maintains the transportation infrastructure that turns the nation's rivers and harbors into economic benefits. Over 20 percent of the employment in the Northwest states is directly related to international trade. The Corps' projects provide jobs and sustain local economies, and they increase the competitiveness of U.S. goods in foreign markets. They are among the few federal programs that are analyzed to ensure that economic benefits exceed the costs. Eliminating Corps programs would not be cost-effective.

DEEP DRAFT CHANNEL DEEPENING

The Columbia River deep draft channel is the lifeblood of the Columbia/Snake River System. To protect future growth and development of the River System, we ask the Committee for full funding for the Corps' feasibility study of the lower Columbia River channel deepening project. This funding would pay for the federal government's share of the study to investigate improving the existing 40-foot navigation channel by increasing the channel depth to 43 feet.

We also are encouraging Congress to pass a Water Resources Development Act in 1995, including authorization of the Coos Bay, Oregon channel deepening project. We urge the Committee to look favorably upon the forthcoming authorization and to appropriate funding for this important project at the earliest possible date.

MINIMUM DREDGE FLEET

We expect that the Committee will be asked again this year to provide more work to the private dredging industry by reducing the work of the hopper dredges operated by the Corps. We strongly encourage the Committee not only to withstand pressure to further reduce the work of the public fleet, but to eliminate the 7.5 million cubic yard set aside for private contractors. We oppose the effort to reduce the federal dredge fleet because we believe it will ultimately lead to the total deactivation of the fleet.

Development of the public dredge fleet as it exists today is the result of many years' efforts to maintain and improve our nation's federally maintained navigation channels. U.S. taxpayers have millions of dollars invested in the Corps dredges. Their useful lives will last well into the next century. To deactivate all or part of the fleet is, quite simply, a waste. Because they are large, complicated vessels, it could take months before mothballed dredges could be put into service to perform emergency work.

With respect to cost, over the last eleven years we have seen numerous occasions where private industry bids were well in excess of the government estimate when no Corps dredge was in the area to perform the work. There is only one private hopper dredge based on the West Coast. All other private dredges capable of servicing smaller ports are owned by firms located outside the Pacific Northwest.

Emergency dredging is often required to restore the federal navigation channel to its authorized depth. Shoaling can occur very rapidly, and it has a potentially dangerous impact on export shipping and the sport and commercial fishing fleet. Shippers and ports cannot afford to wait several weeks for a private dredge to be diverted from another part of the country to do the work.

The coastal and river ports of the Pacific Northwest rely heavily on the response and capability of the Corps' dredges. Emergency dredging is often required to restore the federal navigation channel to its authorized depth. For example, the loss of even one foot of draft due to slow response can cost each grain vessel \$324,000 in cargo value. Shoaling can occur very rapidly, and it has a potentially dangerous impact on export shipping and the sport and commercial fishing fleet. It is unclear if the private dredge industry has sufficient capacity and competition to adequately maintain the Columbia, Snake, Willamette and Chehalis Rivers to allow ships to take full advantage of the authorized channel, and to respond to the non-routine emergency dredging needs of small and medium sized ports on the Oregon and Washington coasts. The risk that they do not is unacceptable and potentially catastrophic. To remain competitive in world markets, Northwest ports require low-cost and timely completion of dredging requirements.

OPERATIONS AND MAINTENANCE OF THE REGION'S HYDROPOWER SYSTEM

The Columbia Basin's hydropower system is increasingly coming under attack. The current National Marine Fisheries Service's draft salmon recovery plan shifts over 85 percent of the Basin's federal water storage from hydropower to flow augmentation and spill for salmon. We do not object to biologically effect salmon recovery measures, but recent scientific evidence, including research by NMFS' own scientists, shows that survival is far higher in the reservoirs than previously thought. This suggests that the massive flows and spills in the draft recovery plan will not provide biological benefit. For the same reasons, we oppose the call for drawdowns at reservoirs on the Snake River and at John Day Dam on the Columbia.

SALMON RECOVERY

The Bonneville Power Administration and the region's rate payers will see the cost of salmon recovery measures grow from \$30 million in 1981 to over \$500 million in 1995 if the NMFS draft recovery plan is implemented.

These increasing salmon costs are not only driving up Bonneville's power rates, they are forcing utility customers to look elsewhere for their power. Public utilities in Washington and Oregon have already contracted with independent producers to provide energy at rates competitive to BPA's. Others are looking to do the same.

While Bonneville's costs are increasing, the cost of alternative power production is declining. Further increases in BPA rates will drive more customers off the Bonneville system. More rate hikes will

diminish, not increase, the capability of BPA to fund the fish programs. Bonneville is at the limit in terms of its ability to pay.

BPA is right to seek relief. But we want to be clear, the answer cannot be found in shifting costs to other Northwest entities. NMFS, OMB or others seeking a new set of deep pockets to supplement BPA funding must understand, to put it simply, the region is tapped out.

Neither the Bonneville ratepayers nor others in the region have the ability to pay more for continually growing salmon programs. Here are a few examples. The ports are public bodies and are supported by local taxpayers. We estimate the gross revenues, not profits, from tug and barge operations above Bonneville to be less than OMB recently proposed for relief for Bonneville under the Northwest Power Act. The grain elevators operate on profit margins of less than a penny a bushel. The grain growers compete on an international market and cannot pass along additional costs to their customers. And, we should not forget that their prices are already supported by the federal taxpayer. The money to make up the non-Bonneville share from the Power Act, let alone the increased costs of the recovery plan, simply is not available in the region. It will be self-defeating to think that other regional interests can absorb more fish and wildlife costs.

If more dollars are needed to fund the federal Endangered Species Act and the Northwest Power Act, there is only one place to turn—the federal government. And by that, we mean federally appropriated funds. This makes sense to us for two reasons. The first is that the region is already paying more than any other region in the world for endangered species protection. We cannot pay more to implement these federal programs. We believe that, in this case, the Endangered Species Act has resulted in an unaffordable federal mandate. It is only right that the federal government should share in the cost of implementing federal legislation.

Secondly, there are no checks and balances on the federal agencies or the Power Planning Council. They simply demand more each year. Without biological monitoring and without scientific justification, the region's costs have increased at an explosive rate. One way to ensure that the federal agencies employ biologically sound and cost-effective measures is to make them responsible for a significant portion of the cost. Federal government participation in paying for recovery measures would bring far greater accountability to the agencies. The benefits would increase and the costs would go down. The Administration and Congress would have a far greater opportunity to make sure that the agencies provide maximum benefit at the lowest possible cost.

We believe that with such accountability and oversight, the region would already have an effective recovery plan in place. For less than was spent in 1994, the agencies could increase the number of barges, improve the smolt transportation program, install surface collectors, improve bypass at the dams, reduce the harvest of wild stocks, improve hatchery practices, improve rearing habitat and increase survival of the salmon.

The Administration's budget proposes shifting Mitchell Act hatchery funding into the Bonneville Power Administration budget. We oppose the Administration's proposal. As with other measures, to ensure control and oversight, the hatcheries should continue to be funded by the federal government. Reinstatement of Mitchell Act funding should be contingent upon the marking of all hatchery fish.

HANFORD CLEANUP

We ask the Committee to continue to adequately fund the Department of Energy cleanup of 45 years of accumulated defense waste currently stored at the Hanford site. We recognize that defense waste cleanup is a long-term project that will be most cost effective and most rigorously pursued if Hanford is a viable, operating site. Therefore, we strongly urge the Committee to support a complete, ongoing Hanford scientifically and technologically based research and operations program in order to ensure long-term funding for waste cleanup.

WETLANDS

PNWA supports continuing to move forward with the Administration's wetlands initiatives. Elements of the Administration's wetlands policy and current Senate and House Clean Water proposals set criteria for wetlands and watershed management plans, to integrate them with broader water resource and land use planning and management. PNWA supports a proposal which would take this one step further—that is, allow the state and local land use planning processes to trigger the federal wetlands regulatory process, at the option of the local jurisdiction. The proposal would offer local jurisdictions three options:

1. To proceed under the current regulatory programs, under which development actions would be permitted individually.
2. To develop a plan which meets the requirements of a Wetlands and Watershed Management Plan, which, upon completion, is approved by the federal government, or
3. To allow local jurisdictions to elect to initiate the federal regulatory process, including the alternatives analysis and mitigation planning for land use classes, as a part of their local land use process. The result of this cooperative process would be the issuance of a Programmatic General Permit or Abbreviated Processing Procedures to authorize development, protection and mitigation activities consistent with the plan.

This proposal would allow communities and land owners to get agreement from federal regulators on where wetlands need to be protected and when they can be filled and compensated for through the use of mitigation credits. It will allow the land use planning process (or other state or local planning process) to serve as the alternatives analysis to meet Section 404 (b)(1) requirements. We believe that this will increase the quality of local land use plans, increase the certainty of implementing the land use plans adopted by local jurisdictions, increase the certainty of protection for valuable wetlands and increase the certainty that local communities will be able to meet their economic development needs.

There is widespread support in the Pacific Northwest for this approach, including support by the Oregon Division of State Lands and the Washington Department of Ecology.

CONCLUSION

On behalf of 140 members from throughout the Pacific Northwest, we thank the Committee for giving us this opportunity to review a number of issues important to the environmental and economic prosperity of our region.

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PREPARED STATEMENT OF AMOS S. ENO, EXECUTIVE DIRECTOR, NATIONAL FISH AND WILDLIFE FOUNDATION

The National Fish and Wildlife Foundation appreciates the opportunity to submit written testimony to the Subcommittee on Energy and Water Development Appropriations, to assist in the Subcommittee's review of the proposed FY 1996 budget of the Bureau of Reclamation (BOR). The President's budget for the Bureau includes \$3.255 million for the Foundation within the agency's Construction account. Although the Foundation has in the past occasionally undertaken some small amount of work for the Bureau, this marks the first year we are explicitly in the Administration's budget for BOR.

The National Fish and Wildlife Foundation (NFWF) is a 501(c)(3) nonprofit organization created by Congress in 1984, and dedicated to the conservation of natural resources -- fish, wildlife, and plants. Among its goals are species habitat protection, environmental education, natural resource management, habitat and ecosystem rehabilitation and restoration, and leadership training for conservation professionals. It meets these goals by forging

partnerships between the public and private sectors, and by supporting conservation activities that pinpoint and solve the root causes of environmental problems.

We appreciate the fact that the Subcommittee is under considerable pressure to reduce spending. We respectfully suggest that by funding the Foundation at the level requested in the President's budget, the Subcommittee will be able to achieve results that are three times greater than what one would normally achieve from a relatively small investment in Federal funds. Furthermore, by investing in the Foundation now, the Subcommittee may avoid fish and wildlife conflicts that might otherwise lead to far larger expenditures in the future.

Bottom Line: doing more with less, shrinking potential Federal liabilities

What can NFWF do for the Bureau of Reclamation and this Subcommittee? We can help the Bureau make the transition from a construction agency to a water resource management agency, by showing it how to engage in cooperative resource management partnerships with the water user community. We have the ability to put together partnerships that bridge traditional interests.

We can head off potential endangered species problems associated with Reclamation water projects, which ultimately might pose expensive problems for this Subcommittee, by working up-front with local communities and the Bureau to improve fish and wildlife habitat and populations that might otherwise deteriorate to the point of being listed under the Endangered Species Act (ESA). Many ESA candidate species are aquatic, or rely on aquatic habitats and associated wetlands and riparian habitats, particularly in the western states served by BOR. As a result, there is considerable potential for operational disruption of Bureau water projects, harmful local economic impacts, and political and financial problems for the Department and the Congress. The Foundation can help BOR take practical steps to lessen or avoid these problems, establish an atmosphere of cooperation rather than antagonism between the Bureau and the local community, and provide a series of positive examples that can be emulated not only across the Reclamation states, but throughout the country.

It is axiomatic that an ounce of prevention is worth a pound of cure. With the leveraging resources of the Foundation, this Subcommittee is only being asked to make a third of an ounce of investment in prevention. We will triple your money and solve real-world problems far more amicably, cost-efficiently, and quickly than would be the case if fish and wildlife problems associated with Bureau water projects were addressed by the Bureau alone.

Mechanics of how funding decisions would be made

The Foundation would work with the Bureau in selecting specific projects in the same rigorous, peer-review manner we deal with other agencies that are appropriated funds for use in our public-private sector partnerships. Foundation staff would work closely with Bureau regional offices and headquarters to identify priority watersheds and assist the Bureau with establishing a cooperative track record with water users and landowners on fish and wildlife conservation issues. The Foundation would actively look for on-the-ground partners in those areas, as well as entertain unsolicited grant applications from individuals or groups who propose to undertake conservation projects in Reclamation states.

All potential grants would be subject to a peer review process, involving state and federal agency staff, academics, commodity and environmental interests, and other recognized experts. The review process examines the project's technical merit, the degree of interest in the local community, the variety of partners who are willing to participate, and the amount of non-Federal cost-share that is proposed. If the proponent of an otherwise highly meritorious project is unable to provide the minimum necessary cost-share, the Foundation will work with the project proponent to identify and solicit corporate or other sponsors for the project in question. If necessary, we work with potential grantees to improve the quality of their grant proposal.

Projects recommended for funding by NFWF staff are fully reviewed by Bureau regional and Washington office staff before being presented to the NFWF Board for approval. The Foundation requires strict financial reporting by grantees, and we ourselves are subject to an annual audit. In addition to our own audits, NFWF is also routinely audited by our federal partners. In 1993, the Foundation underwent an audit by the Inspector General of the Interior Department, which we passed with flying colors.

In March, 1994, the Foundation and the Bureau of Reclamation entered into a Memorandum of Understanding that outlined principles for cooperative work. This document would be the point of departure for more detailed accounting arrangements that would be agreed to before the Foundation would actually receive appropriated funds from the Bureau.

Relevance to the Bureau of Reclamation

The Bureau of Reclamation has shifted from a construction agency, responsible for building dams and water delivery systems, to a water resources management agency that must be concerned about a host of issues. The Bureau manages 8.5 million acres of land and water, provides irrigation water to 9.8 million acres of agricultural lands, and controls releases to thousands of miles of streams and rivers. As water is often the single most precious commodity -- both for man and other parts of the ecosystem -- in the West, the Bureau has a tremendous ability to benefit or harm natural resources.

To adequately address the resource challenges facing fish and wildlife, the Bureau needs creative solutions and the development of new partnerships among federal and state agencies and private sector. This is exactly what the National Fish and Wildlife Foundation can deliver. Several projects supported by NFWF are illustrative of how we work and what could be expected should we initiate a challenge grant program with the Bureau:

On the Crooked River in central Oregon, for example, a Foundation "Bring Back the Natives" grant has united diverse interests into the Crooked River Ecosystem Education Council, which is using an imaginative and effective blend of restoration, habitat protection, private landowner involvement, facility development, and public education to restore the river's aquatic health. "Bring Back the Natives" is an unprecedented partnership involving commodity groups, industry, municipalities, state and federal agencies, private landowners, and the National Fish and Wildlife Foundation aimed at restoring entire stretches of river for native fish and mussel species. The program has transcended jurisdictional lines to become a highly effective conservation venture; to date, 41 projects involving more than 1,900 miles of riverine habitat have been initiated. A significant fraction of this work has benefited areas where the Bureau of Reclamation has ongoing responsibilities.

In New Mexico, we have provided a grant to the Rio Grande Bosque Task Force for the development of an integrated management strategy for the Middle Rio Grande Bosque, a unique and highly complex ecosystem that is home to a variety of river and riparian species of flora and fauna. The Bosque area is subject to development pressures and invasion by exotic species. The state government has appointed a task force, whose work was facilitated by the Foundation's grant.

Basic Facts About the Foundation

The Foundation is authorized to receive Federal appropriated funds, and last year this funding authorization was extended through FY 1998. The authorized funding level for FY 1996 is \$25 million. The Foundation invests in the best possible solutions to conservation problems by awarding challenge grants using its federally appropriated funds to match private sector funds. We have a statutory requirement to match Federal funds with at least an equal amount of non-Federal funds. We have an internal policy requiring at least a 2:1 overall matching ratio, and we consistently exceed this. These combined Federal/non-Federal resources fuel effective

conservation projects. No Federal appropriations are used to meet NFWF's administrative expenses; these administrative costs are covered through separate private fundraising activities. All appropriations made available for NFWF by this Subcommittee will support on-the-ground projects, at the rate of roughly \$3 of activity for every Federal dollar appropriated. No funds we dispense are used for lobbying, litigation or other advocacy activities.

We would be happy to provide any additional information or answer any questions for the Subcommittee.

PREPARED STATEMENT OF R. MAX PETERSON, EXECUTIVE VICE-PRESIDENT,
INTERNATIONAL ASSOCIATION OF FISH AND WILDLIFE AGENCIES

The International Association of Fish and Wildlife Agencies, founded in 1902, is a quasi-governmental organization of public agencies charged with the protection and management of North America's fish and wildlife resources. The Association's governmental members include the fish and wildlife agencies of the states, provinces, and federal governments of the U.S., Canada, and Mexico. All 50 states are members. The Association has been a key organization in promoting sound resource management and strengthening federal, state, and private cooperation in protecting and managing fish and wildlife and their habitats in the public interest. I appreciate the opportunity to share our perspectives with you today.

In these times of fiscal constraint, the Association recognizes and appreciates the modest increases to some of the natural resource agencies' budgets. Accordingly, we have made thoughtful deliberations over our recommendations and have been careful to support only prudent and modest increases where it is necessary.

U.S. ARMY CORPS OF ENGINEERS

The Association supports the continued involvement and expansion of fish and wildlife habitat and environmental programs within the Corps. The FY 1996 budget proposal shows that the Corps is planning to continue this important work.

Our Association appreciates the leadership of this Committee to provide funding for mitigation projects. We support the continued mitigation, including riparian restoration, related to the Tennessee-Tombigbee Waterway. We endorse the \$21 million budgeted toward progress in completing this project.

We support the increased funding for the Section 1135 environmental projects which are being expanded in funding from \$8 million to \$25 million for FY 96. The Association would like to see less limitation on the type of fish and wildlife projects that are eligible for funding under Section 1135. Also, the amount of engineering that has been required on some of these projects makes them cost-prohibitive for states to participate as a cost-share partner. Also, we ask that the Corps allow in-kind match toward the 25% share of the project.

The Association is also supportive of the funding requested for some of the large river restoration projects such as those planned for the Kissimmee River, Columbia River and the Upper Mississippi. It is in the best interest of the country to restore the habitat and hydrology components on these rivers that have been significantly altered under previous projects.

The U.S. Fish and Wildlife Service has announced plans to divest its ownership of 11 fish hatcheries around the nation. State fish and wildlife agencies are likely to take over operations of some of these hatcheries as they have done in the past. Some federal hatcheries are on federal lands managed by the Corps. States will want fee title to the lands and structures on the hatchery grounds. In some states fee title is necessary to make capital investments. We ask that the Corps take necessary steps to transfer these particular lands to the states. This will enable some states to assume responsibility for maintenance and operation of hatcheries.

The Association supports increased funding of \$11 million to enable the Corps of Engineers regulatory program to implement the President's Wetlands Plan of August 24, 1993.

With regard to the Corps' regulatory authority under the Clean Water Act of 1972, we strongly support the implementation of a streamlined program to process, review, issue permits, and provide an appeals procedure for the permitting of activities in waters of the United States, including wetlands associated permits and jurisdictional determinations as well as sand and gravel dredging activities. The Association believes a strong partnership program with state agencies affords the best opportunity for balanced conservation of aquatic resources.

We continue to support the Corps program to restore salmon and other anadromous fish in the Pacific Northwest, we recommend funding of \$79 million to continue construction of juvenile fish migration facilities. Without such improved facilities, other efforts to restore salmon populations will probably not be successful.

Due to dramatic impact of aquatic plants on recreational fishing and boating, the International recommends the inclusion of \$10 million in funding for continuation of aquatic plant control research and demonstration as conducted at the Corps' Waterway Experiment Stations.

The Association recommends the Army Corps of Engineers actively cooperate in the Federal-State-private Clean Streams Initiative that is included in the US Department of Interior Office of Surface Mining budget to restore fish, aquatic life, and recreational opportunity to streams damaged by acid mine drainage resulting from past coal mining activities. The Association recommends the Corps provide funding in the amount of \$10 million.

We recommend the Corps of Engineers continue research and demonstration of control strategies for zebra mussels in the amount of \$1.0 million.

The Association recommends that the Corps continue in partnership with State Fish and Wildlife Agencies to initiate applicable restoration, mitigation and conservation projects. For example, we request the Corps continue to participate in the North American Waterfowl Management Plan through wetlands conservation, wetlands identification, and wetlands acquisition.

Much wetland restoration is needed in the Southeast, but many are alarmed by restoration project proposals. Pilot restoration projects of an experimental nature would be useful, for example, to restore the hydrology and habitat value of some of the Corps' ditched projects in the Southeast. A pilot project could refine techniques that would be useful and more universally applicable. The Association recommends that \$750,000 of the increase requested for implementing the President's wetland plan be used to accommodate a pilot wetland restoration project.

We continue to recommend that Congress provide specific generic legislative direction to the Corps to ensure that older projects include adequate authority and direction for fish and wildlife enhancement.

The Association supports funding of \$15 million for wetlands and aquatic habitat restoration including the beneficial use of dredged materials for habitat enhancement and riparian habitat restoration.

The Association recommends that the Corps continue to work closely with the State fish and wildlife agencies to identify priority restoration, mitigation and remediation projects needing the Corps' attention. The State fish and wildlife agencies are generally aware of where Corps projects could most effectively enhance the status of fish and wildlife resources through improvements to habitat. In particular, we encourage the Corps to participate in funding projects to meet the objectives of the North American Waterfowl Management Plan.

TENNESSEE VALLEY AUTHORITY (TVA)

The TVA budget request for FY 1996 is approximately \$140.5 million. The Association supports and commends the proposal with regard to funding for stewardship, water and land initiatives, Land Between the Lakes (LBL), conservation-oriented economic development, and the Environmental Research Center (ERC).

The Association recommends that TVA actively support and participate in the States' Clean Stream Initiative with the Office of Surface Mining (OSM) to complete projects in the TVA service area and that TVA fund participation in the amount of \$10 million. These state-Federal-private cooperative projects are engaged in restoring fish, aquatic life, recreational and economic opportunity in watersheds damaged by acid mine drainage from past coal mining activities.

The Association supports funding of stewardship programs including reservoir and stream vital signs monitoring (\$1.53 million), Clean Water Initiative and River Action Teams (\$8.6 million), and Riparian Zone Stabilization (\$1.0 million). We strongly support the Reservoir Release Improvement project and find that local communities benefit from enhanced sport fishing and tourism opportunity. The Association is concerned, however, that this program is underfunded (\$0.3 million) in the FY 96 budget.

The Association recognizes the importance of boating, fishing, camping, hunting, wildlife observation, and other conservation-oriented activities at Land Between the Lakes (LBL) and support funding in the amount of \$6.2 million.

The Association commends TVA for focusing on public access areas and boat launch facilities. Tourism associated with TVA facilities is essential to the economic well being of adjacent communities. We strongly support the proposed budget for Facility Management (\$13.1 million) and Dam Reservation/Reservoir Facility Administration (\$7.5 million) understanding that a significant portion of this budget lies in capital contribution of access areas and boat launches.

We are encouraged that TVA has undertaken a serious review of public lands along TVA reservoirs and rivers to insure these properties are not utilized in such a manner as to exclude public use. Further, we support current and future planning efforts that insure conservation and protection of riparian habitat.

The Association was disappointed to hear that the Challenge Cost share program initiated in FY 95 is not included in the FY 96 request. Program success in 1995 was evident as matching funds were found at a ratio of 3:1 and many worthwhile projects were initiated. The Association, in recognition of these fiscally difficult times, recommends that the TVA re-institute the challenge cost program within available funds and emphasize cooperative access development and boat launch construction.

FEDERAL ENERGY REGULATORY COMMISSION (FERC)

The Association recommends Congressional appropriation of \$5 million to allow FERC to reimburse state fish and wildlife agencies for studies and reviews associated with hydropower relicensing activities. Section 1701 of the Federal Power Act was amended in 1992 specifically to authorize reimbursement to states for this work. FERC has never sought appropriated funds for this purpose. If appropriated funds cannot be provided, FERC should be instructed to require reimbursement for this work by the licensee. Otherwise, projects will be proposed for relicensing without adequate studies of appropriate fish and wildlife licensing requirements. This invites conflict and possibly more stringent requirements, including water releases, than would be needed if more adequate studies were made.

BUREAU OF RECLAMATION (BOR)

The Association recognizes with appreciation the continued BOR shift away from project construction and toward non-structural water resources management objectives. The enhanced water conservation, reclamation and partnership themes of the FY 96 budget request certainly makes sense in the climate of the times. The Association notes with particular appreciation the number of projects specifically designed to enhance and restore fish and wildlife resources associated with BOR holdings.

Water Conservation and Reuse -- BOR has requested funding for new water management and conservation activities. This request for added funding for these activities, funds made available largely through reductions in other more traditional activities, is supported by the Association. Among the types of work proposed are improvements in Colorado River operations, including new approaches to water salinity control; irrigation management improvements; and water reclamation and reuse projects in California.

Central Valley Project -- It is most appropriate, and strongly supported by the Association that the BOR has requested use of \$43.6 million from the Central Valley Project Restoration Fund for much needed and overdue actions to benefit environmental conditions associated with the Central Valley Project. The habitat restoration and improvement, screening construction, and acquisition of water for refuge resources, and the continued work on the water temperature control capabilities at Shasta Dam will help restore fish and wildlife resources that have been adversely impacted by this project.

Columbia/Snake River Salmon Recovery Project -- The Association supports BOR's request for \$15 million, including \$10 million for water purchases, to address the increasingly serious situation associated with the endangered salmonid populations of these watersheds. While it is truly unfortunate that steps to remedy fish passage problems in these rivers necessitated a jeopardy biological opinion, it is recognized with appreciation that the FY 96 BOR budget includes funding for water to provide flows to enhance downstream migration of young fish. Adequate and safe conveyance capability for young fish is absolutely essential to restoring salmon populations.

Colorado River Endangered Species Recovery -- Responding to species poised virtually on the brink of extinction, the BOR has requested an increase in funding for critical work in the Colorado River Basin. The Association supports the request for \$8.5 million for water acquisition, habitat improvements and construction of rearing facilities for these endangered resources.

Wetlands Development -- It is surprising for the Association to note that while the FY 96 BOR budget focuses to an heretofore unknown extent on problem solving for fish and wildlife deficiencies associated with BOR projects, the Wetlands Development line item reflects a 40 percent decline compared to FY 95 funding levels. In past years, the Association has urged the BOR to become a more active participant in wetlands projects. Wetland conservation, restoration and protection are key ingredients to the success of the North American Waterfowl Management Plan and the Partners in Flight initiative. The Association requests that Congress restore funding for the Wetlands Development line item to the \$3.1 million level appropriated in FY 95.

LETTER FROM GOVERNOR JIM GERINGER, CHEYENNE, WY

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy and Water Development
Senate Appropriations Committee
United States Senate
131 Dirksen Senate Office Building
Washington, D.C. 20510

March 27, 1995

Summary: The State of Wyoming requests \$18,600,000 in Fiscal Year 1996 funding for the Colorado River Basin Salinity Control Program of the Bureau of Reclamation, and concurs with testimony submitted by the Colorado River Basin Salinity Control Forum

Dear Senator Domenici:

I am writing in support of a Fiscal Year 1996 appropriation of \$18,600,000 for the Bureau of Reclamation's

Colorado River Salinity Control Program. This Program has as its objective the maintenance of state-adopted, EPA-approved, water quality standards for the Colorado River Basin.

I appreciate the fiscal difficulty you face in allocating scarce resources to priority programs. However, our recommended appropriation is the amount needed to meet federal mandates levied by statute and EPA regulation, along with an international agreement with the Republic of Mexico. If we can find relief from the mandates, the Forum could determine a more economical approach to implementing this Program.

Testimony was recently transmitted to your Subcommittee by the Executive Director of the Colorado River Basin Salinity Control Forum, requesting appropriations to continue this important, basin-wide water quality program. Wyoming is an active participant on both the Colorado River Basin Salinity Control Forum (Forum) and the Colorado River Basin Salinity Control Advisory Council. I am writing in support of the appropriation recommendation contained in that testimony.

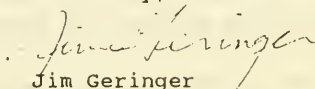
In addition to the construction and plan formulation appropriation levels recommended by the President, funding recommendations relevant to the Colorado River salinity control effort are included in the Bureau of Reclamation's budget for operation and maintenance and general administrative expense. The Forum's testimony noted the importance of adequate funding for the operation and maintenance of constructed salinity control facilities that are in place helping to insure that the State-adopted and EPA-approved water quality numeric criteria are not exceeded.

If appropriate levels of funding are not provided for the Colorado River Salinity Control Program, there is most certainly an increased probability that the numeric criteria specified in the water quality standards for the Colorado River system may be exceeded. Delaying or deferring adequate funding for the Program will create the need for a more expensive salinity control effort in the future in order to assure that this nation meets its water quality commitments to the Republic of Mexico. "Catch-up" funding in future fiscal years will cost both the Federal Government and the States, who are cost-sharing partners in this Program, a considerably larger sum of money and increase the likelihood that the numeric criteria for Colorado River water quality may be exceeded. Wyoming would observe the salinity control program is one of the most successful Federal/State cooperative non-point source pollution control programs in the United States.

Thank you for the opportunity to submit this letter. I would request that this letter be made a part of the formal hearing record concerning FY 1996 appropriations for the Bureau of Reclamation.

With best regards, I am

Sincerely,


Jim Geringer
Governor

CALIFORNIA WATER RESOURCE DEVELOPMENT PROJECTS
PREPARED STATEMENT OF THOMAS SCHEELER, ASSISTANT DIRECTOR OF
ENGINEERING, PORT OF SACRAMENTO

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

THE SACRAMENTO-YOLO PORT DISTRICT IS THE LOCAL SPONSOR OF THE SACRAMENTO RIVER DEEP WATER SHIP CHANNEL NAVIGATION PROJECT. THE FIRST TWO OF SIX PHASES HAVE BEEN COMPLETED ON THIS PROJECT AND A RECENT SETTLEMENT WITH THE LOCAL UTILITY HAS RESOLVED THE ISSUE OF FINANCIAL RESPONSIBILITY FOR UTILITY CROSSING RELOCATIONS THAT HAS DELAYED PHASE 3. THE PORT OF SACRAMENTO CONTINUES ITS EFFORTS TO REINFORCE THE FINANCIAL BASE THAT WILL ALLOW FOR THE RESTART OF DREDGING AND HENCE THE SUCCESSFUL COMPLETION OF THIS IMPORTANT PROJECT. THE PORT OF SACRAMENTO HAS IMPROVED ITS FACILITY TO BOTH PROTECT THE ENVIRONMENT AND BROADENED ITS BUSINESS BASE TO SERVE THE INTERNATIONAL COMMODITY NEEDS OF CALIFORNIA AND THUS BENEFITING THE LOCAL, STATE AND NATIONAL ECONOMIES.

ON BEHALF OF THE PORT OF SACRAMENTO, I CONVEY OUR APPRECIATION FOR YOUR PAST COMMITMENT TO THIS PROJECT AND REQUEST YOU SUPPORT FUNDING IN THE AMOUNT OF \$100,000 TO ALLOW CONTINUATION OF CORPS OF ENGINEERS PROJECT MANAGEMENT ACTIVITIES.

PREPARED STATEMENT OF MAYOR LEE BYRD, CITY OF RANCHO PALOS VERDES

Mr. Chairman and Members of This Distinguished Subcommittee:

Your continued support of the Rancho Palos Verdes shoreline protection feasibility study is of vital importance. The erosion of the California coastline in the City of Rancho Palos Verdes has degraded at least 2,000 acres of valuable intertidal and subtidal habitat and in addition, threatens to undermine an uplands landslide in the non-federal jurisdiction, the majority of which has already been stabilized with non-federal funds.

The City and the Corp have undertaken a jointly funded feasibility study and we respectfully ask that \$200,000 of

matching funds be included in FY 1996 appropriations to continue that study. The City of Rancho Palos Verdes has already committed to fund our share of the study.

We are encouraged by our preliminary discussions with representatives from the Department of the Interior and the Fish and Wildlife Service that following completion of the feasibility study, the Shoreline Project and resulting restoration of the marine habitat would be designated for off-site mitigation credit for the very important Los Angeles and Long Beach Port development programs. We anticipate that the construction would be accomplished without the use of federal funds.

I also stand in support of the many Port, Harbor and Marina projects in California that my colleagues have brought before you this morning. And, I greatly appreciate the support that Congresswoman Jane Harman has made known to you regarding the Rancho Palos Verdes erosion control project.

PREPARED STATEMENT OF MAYOR DICK LYON, OCEANSIDE, CA

Congress appropriated funds in the FY 1994 budget to construct Phase III of the Oceanside Sand Bypass System. That system has been designed to work in conjunction with a modified dredging program for Oceanside Harbor. The recommended design will capture sand between dredging cycles, in the summer months. Approximately 150,000 cubic yards of sand would be removed during these months, reducing federal maintenance dredging costs by approximately \$1,128,750.

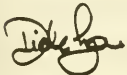
Congress appropriated funds in FY 1995 to repair the Sand Bypass System discharge pipeline, which was seriously damaged as a result of the winter storms of 1993. The Corps of Engineers is currently soliciting bids for the construction of the Phase III installation and pipeline modifications and anticipates completing that work in early 1996.

The City of Oceanside has requested that the Corps of Engineers operate the Sand Bypass System for a full year after the improvements are made. During that time, the City of Oceanside would expect the Corps of Engineers to provide the City with operational costs and data regarding the extent to which the bypass system reduces federally obligated maintenance dredging expenses. Based on that information, the City of Oceanside is willing to enter into discussions with the Corps of Engineers concerning assumption of the operation and maintenance of the system. The City would also request that your committee direct the Corps of Engineers to procure the platform on which the Sand Bypass System is mounted. That action will assure that the federal government's investment in the system is protected.

The City of Oceanside requests your support of \$750,000 in the FY 96 budget to operate and maintain the Oceanside Sand Bypass System. During that period, final system operation can be fully tested and refined, and the Corps of Engineers and City of Oceanside can complete discussions regarding local assumption of system operation and maintenance.

The Oceanside Sand Bypass System has been a cost effective means for maintaining the Oceanside Harbor and providing beach protection and recreational benefits. We ask your support so that the newly completed improvements can be operated in FY 1996.

Respectfully submitted,



Dick Lyon
Mayor

PREPARED STATEMENT OF DICK LYON, PRESIDENT, OCEANSIDE HARBOR
MAINTENANCE AND OPERATION PROGRAM

The Oceanside Harbor District requests your support of \$1,045,000 in the FY 1996 budget for the Oceanside Harbor Maintenance and Operation (modified dredging) Program. This program will work in conjunction with the Sand Bypass System. The Maintenance and Operation Program, combined with the Sand Bypass System, is necessary for the safe navigation into Oceanside Harbor and the U.S. Marine Corps Base Camp Pendleton Harbor. The program will additionally provide beach sand restoration, shoreline protection and associated recreational benefits.

Thank you for your continued support of all our projects.

Respectfully submitted,



Dick Lyon
President

PREPARED STATEMENT OF MICHAEL R. POWERS, PORT DIRECTOR, PORT OF
RICHMOND, CA

MR CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE.

THANK YOU FOR THE OPPORTUNITY TO APPEAR ONCE AGAIN
BEFORE YOU TODAY IN SUPPORT OF THE FISCAL YEAR 1996 ENERGY AND
WATER REGULAR APPROPRIATIONS MEASURE.

I AM MICHAEL R. POWERS, PORT DIRECTOR OF THE PORT OF RICHMOND,
CALIFORNIA. I AM ACCOMPANIED BY MR. LAWRENCE G. MALLON, SPECIAL
COUNSEL TO THE PORT. I APPEAR ON BEHALF OF MAYOR ROSEMARY
CORBIN AND THE OTHER MEMBERS OF THE CITY COUNCIL OF THE CITY OF
RICHMOND.

THE CITY COUNCIL RECOGNIZES AND EXPRESSES ITS GRATITUDE
TO OUR LOCAL CONGRESSMAN, THE HONORABLE GEORGE MILLER, THE
HONORABLE BILL BAKER FROM THE COMMITTEE ON TRANSPORTATION
AND INFRASTRUCTURE, AND TO YOU, MR. CHAIRMAN, AS WELL AS
CONGRESSMAN FAZIO, AND THE OTHER MEMBERS OF THIS
SUBCOMMITTEE AND STAFF, FOR THEIR CONTINUING EFFORTS IN
FUNDING THIS NAVIGATION PROJECT OF CRITICAL IMPORTANCE TO THE
FUTURE DEVELOPMENT OF THE PORT OF RICHMOND.

FISCAL YEAR 1996 MARKS THE LONG-AWAITED NEW CONSTRUCTION START OF THE PROJECT FOR NAVIGATION, RICHMOND HARBOR, CALIFORNIA FIRST AUTHORIZED IN THE WATER RESOURCES DEVELOPMENT ACT OF 1986. THIS PROJECT INCLUDES PHASE ONE DEEPENING OF THE MAIN, POTRERO REACH, INNER HARBOR AND SANTA FE CHANNELS FROM THEIR PRESENT THIRTY FIVE TO THIRTY EIGHT FEET, AND INCORPORATES A NEW INNER HARBOR TURNING BASIN TO IMPROVE NAVIGATION SAFETY FOR LARGER VESSELS TRANSITING THE HARBOR.

THE CITY COUNCIL REAFFIRMS ITS SUPPORT FOR THE RICHMOND NAVIGATION PROJECT AND SUPPORTS APPROVAL OF THE PRESIDENT'S BUDGET REQUEST FOR 3.296 MILLION DOLLARS IN START UP FUNDS TO BE INCORPORATED IN THE FISCAL YEAR 1996 ENERGY AND WATER APPROPRIATIONS MEASURE BEFORE THIS SUBCOMMITTEE, SUBJECT TO A REQUEST FOR ADDITIONAL FUNDS TO COMPLETE CONSTRUCTION DURING THE FOLLOWING FISCAL YEAR.

AS THE NON-FEDERAL PROJECT SPONSOR, THE CITY COUNCIL IS PREPARED TO MEET ITS STATUTORY COST-SHARING REQUIREMENTS UNDER WRDA 86. THE COUNCIL ESTABLISHED THE FIRST NAVIGATION SPECIAL ASSESSMENT DISTRICT IN THE UNITED STATES BY CITY ORDINANCE IN 1989 FOR THIS PURPOSE. THE COUNCIL INTENDS TO LEVY ASSESSMENTS ON CERTAIN REAL PROPERTY OWNERS AS PROJECT BENEFICIARIES UNDER THIS AUTHORITY TO ENSURE THE AVAILABILITY OF LOCAL MATCHING FUNDS IN ADVANCE OF PROJECT CONSTRUCTION.

AFTER RIGOROUS TESTING CONDUCTED UNDER JOINT EPA-CORPS OF ENGINEERS SUPERVISION, MOST OF THE DREDGED MATERIAL ASSOCIATED WITH THE NAVIGATION PROJECT HAS BEEN DETERMINED TO BE SUITABLE FOR UNCONFINED AQUATIC DISPOSAL. FOR THE REMAINDER OF PROJECT MATERIAL. WE ARE PROCEEDING WITH PLANS TO EITHER

IMPROVE AN EXISTING UPLAND DREDGED MATERIAL DISPOSAL SITE WITHIN PORT BOUNDARIES, OR UTILIZE AN OFF-SITE LOCATION CHARACTERIZED AS A WETLAND RESTORATION PROJECT SUBJECT TO NECESSARY PERMIT APPROVAL FOR THAT PROJECT.

THE FIRST ALTERNATIVE WILL REQUIRE A SUBSTANTIAL FINANCIAL COMMITMENT BY THE LOCAL SPONSOR THIS YEAR WELL IN ADVANCE OF THE COMMENCEMENT OF ACTUAL CONSTRUCTION.

IN THIS REGARD WE ARE SEEKING ADOPTION BY THE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE IN A PROPOSED WRDA 95 OF A CLARIFICATION OF THE APPLICABILITY OF A PROVISION INCORPORATED IN LAST YEAR'S SIMILAR MEASURE WITH HOUSE APPROVAL BUT WHICH FAILED OF ENACTMENT IN THE SENATE PRIOR TO ADJOURNMENT. THIS PROVISION, WHICH ENJOYS BROAD BIPARTISAN AS WELL AS ADMINISTRATION SUPPORT, AMENDS WRDA 86 TO EXTEND COST-SHARING TO IMPROVEMENTS MADE TO LOCALLY-ACQUIRED UPLAND DISPOSAL AREAS FOR DREDGED MATERIAL. HAD WRDA 94 BEEN ENACTED, OUR ANTICIPATED EXPENDITURES THIS YEAR WOULD ALREADY BE SUBJECT TO THAT PROVISION.

WE NOW SEEK CLARIFICATION THAT WILL ENSURE THAT WE ARE SUBJECT TO ANY SUCH PROVISION THAT IS ENACTED BY CONGRESS LATER THIS YEAR OR THEREAFTER. OUR PROPOSED CLARIFYING LANGUAGE --WHICH I AM ADVISED ENJOYS THE SUPPORT OF THE AMERICAN ASSOCIATION OF PORT AUTHORITIES-- WOULD CLARIFY THE APPLICABLE TIME PERIOD FOR QUALIFIED EXPENDITURES BY A LOCAL SPONSOR OF A NAVIGATION PROJECT TO RECEIVE CREDIT FOR COST-SHARING PURPOSES FOR IMPROVEMENTS TO UPLAND DREDGED MATERIAL DISPOSAL AREAS TO REFLECT EXPENDITURES MADE BEFORE

THE TIME OF CONSTRUCTION OR PROJECT COMPLETION, WHICHEVER COMES LATER.

THIS APPROACH IS BOTH LOGICAL AND EQUITABLE IN THAT IT TRACKS ACTUAL CUSTOM AND PRACTICE UNDER PROJECT COOPERATION AGREEMENTS FOR NAVIGATION PROJECTS AS BETWEEN THE CORPS AND THE LOCAL SPONSOR IN WHICH ALL OPEN ITEMS CONCERNING CONSTRUCTION COST-SHARING AND LOCAL SPONSOR CREDITS FOR LANDS, EASEMENTS AND RIGHTS-OF-WAY ARE APPORTIONED AND FINALLY DETERMINED AS PART OF A FINAL ACCOUNTING COINCIDENT WITH COMPLETION OF PROJECT CONSTRUCTION. WE COMMEND IT TO THE COMMITTEES OF JURISDICTION OF THE HOUSE AND SENATE FOR THEIR CONSIDERATION AND INCORPORATION IN WRDA 95 OF THE UPLAND DISPOSAL AREA COST-SHARING PROVISION.

WE ARE SEEKING SIMILAR PROTECTION FROM THE CORPS OF ENGINEERS IN THE LANGUAGE OF THE PROJECT COOPERATION AGREEMENT TO BE EXECUTED LATER THIS YEAR.

IN SHORT, AS THE LOCAL SPONSOR WE REAFFIRM OUR SUPPORT AND FINANCIAL COMMITMENT TO THE SUCCESSFUL PROSECUTION OF THIS NAVIGATION PROJECT OF SIGNIFICANT ECONOMIC BENEFIT TO THE NATION, REGION, AND LOCAL ECONOMY. WE ARE PREPARED TO MEET OUR COMMITMENTS AS PARTNERS WITH THE CORPS OF ENGINEERS IN THIS VENTURE. WE ASK THE SUBCOMMITTEE'S HELP TO ASSURE THE AVAILABILITY OF FEDERAL FUNDS IN NEXT YEAR'S BUDGET FOR THIS PURPOSE.

AGAIN, THANK YOU MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE FOR THE OPPORTUNITY TO APPEAR BEFORE YOU TODAY.

THIS CONCLUDES MY REMARKS. I LOOK FORWARD TO REPORTING TO YOU UPON THE SUCCESSFUL COMPLETION OF THIS PROJECT.

PREPARED STATEMENT OF THE HUMBOLDT BAY HARBOR
RECREATION AND CONSERVATION DISTRICT

MR CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE,

THANK YOU FOR THE OPPORTUNITY TO APPEAR BEFORE YOU TODAY IN SUPPORT OF THE FISCAL YEAR 1996 ENERGY AND WATER REGULAR APPROPRIATIONS MEASURE.

I AM COMMISSIONER DENNIS HUNTER, AND ACCOMPANYING ME IS OUR COMMISSION PRESIDENT, ROY CURLESS. WE APPEAR ON BEHALF OF THE HUMBOLDT BAY HARBOR, RECREATION AND CONSERVATION DISTRICT IN EUREKA, CALIFORNIA. WE ARE ACCOMPANIED BY MR. LAWRENCE G. MALLON, SPECIAL COUNSEL TO THE HARBOR DISTRICT.

THE COMMISSION RECOGNIZES AND EXPRESSES ITS GRATITUDE TO OUR LOCAL CONGRESSMAN, THE HONORABLE FRANK RIGGS, A MEMBER OF THE HOUSE APPROPRIATIONS COMMITTEE, AND TO YOU, MR. CHAIRMAN, AND THE OTHER MEMBERS OF THIS SUBCOMMITTEE AND STAFF, AND TO SENATORS BOXER AND FEINSTEIN AND THEIR STAFFS, FOR THEIR CONTINUING EFFORTS IN FUNDING THIS NAVIGATION PROJECT OF CRITICAL IMPORTANCE TO THE FUTURE DEVELOPMENT OF THE HUMBOLDT BAY AND COUNTY, AND THE ENTIRE NORTHCOAST REGION OF THE STATE OF CALIFORNIA.

FOR THOSE UNFAMILIAR WITH THE GEOGRAPHY, HUMBOLDT BAY IS THE ONLY DEEP-DRAFT NATURAL HARBOR STRATEGICALLY SITUATED ALONG FIVE HUNDRED MILES OF PACIFIC COASTLINE BETWEEN SAN FRANCISCO AND COOS BAY, OREGON.

THE COMMISSION REAFFIRMS ITS SUPPORT FOR THE HUMBOLDT HARBOR AND BAY DEEPENING PROJECT, AND SUPPORTS APPROVAL OF THE PRESIDENT'S BUDGET REQUEST FOR PRECONSTRUCTION ENGINEERING AND DESIGN FUNDS IN THE FISCAL YEAR 1996 ENERGY AND WATER APPROPRIATIONS MEASURE BEFORE THIS SUBCOMMITTEE.

APPROPRIATION OF THE REQUESTED AMOUNTS WILL ENSURE A SMOOTH TRANSITION FROM THE COMPLETED FINAL PROJECT FEASIBILITY STUDY TO PROJECT DESIGN AND CONSTRUCTION NOW SCHEDULED TO COMMENCE IN 1997. IN ORDER TO MEET THAT SCHEDULE, PROJECT AUTHORIZATION MUST OCCUR IN A WATER RESOURCES DEVELOPMENT ACT (WRDA) 1995 OR 1996. WE ARE WORKING WITH OUR CONGRESSIONAL DELEGATION AND THE ADMINISTRATION TO ENSURE TIMELY PROJECT AUTHORIZATION.

CONSTRUCTION OF THE PLANNED NAVIGATION PROJECT WILL RESULT IN YEAR ROUND ACCESS BY LARGE COMMERCIAL VESSELS IN VIRTUALLY ALL NORTH PACIFIC WEATHER CONDITIONS TO CALIFORNIA'S LEAST DEVELOPED BUT STILL FIFTH RANKED PORT IN COMMERCIAL TONNAGE IN 1994. YET THE LONG TERM SIGNIFICANCE OF THE PROJECT TO THE HARBOR AND REGION TRANSCENDS THE IMMEDIATE AND TANGIBLE BENEFITS IN INCREASED VESSEL SAFETY AND SIGNIFICANT TRANSPORTATION COST SAVINGS TO TODAY'S SHIPPERS.

FROM THE COMMISSION'S PERSPECTIVE, THE HUMBOLDT BAY HARBOR NAVIGATION PROJECT IS THE CENTERPIECE OF AN AMBITIOUS EFFORT TO DIVERSIFY THE ECONOMY OF A REGION HISTORICALLY DEPENDENT UPON THE FOREST PRODUCTS INDUSTRY FOR ITS ECONOMIC BASE. THE COMMISSION HAS ALREADY INVESTED IN THE PUBLIC NORTH COAST RAILWAY AUTHORITY PROVIDING A CRITICAL SURFACE

TRANSPORTATION LINK TO POPULATION CENTERS WITHIN AND WITHOUT THE STATE OF CALIFORNIA.

LINKED TO THE FEDERAL NAVIGATION PROJECT ARE PLANNED INVESTMENTS IN INTERMODAL PORT ACCESS ROUTES UNDER THE FEDERAL ISTEA ("ICETEA") PROGRAM ADMINISTERED BY THE TRANSPORTATION DEPARTMENT, AND A FIRST EVER PUBLIC TERMINAL TO ACCOMMODATE BOTH CRUISE VESSELS SEEKING TO MAKE HUMBOLDT BAY A REGULAR PORT OF CALL AND TO HANDLE COMMERCIAL CARGO DRAWN BY THE RELATED ROAD AND RAIL IMPROVEMENTS.

IN ORDER TO MEET ITS PROSPECTIVE FINANCIAL COMMITMENTS TO THIS PROJECT AS LOCAL SPONSOR, THIS YEAR THE COMMISSION WILL BEGIN EXPLORING PROMISING ALTERNATIVE PUBLIC FINANCE MECHANISMS --SUCH AS THE ESTABLISHMENT OF A HUMBOLDT BAY HARBOR IMPROVEMENT DISTRICT, A FORM OF SPECIAL ASSESSMENT DISTRICT-- TO FINANCE IN PART ITS SHARE OF THE COST OF PROJECT CONSTRUCTION AND RELATED SHORESIDE IMPROVEMENTS. THIS INITIATIVE WILL ENSURE THAT WHEN THE FEDERAL GOVERNMENT IS READY TO PROCEED WITH THE DEEPENING OF HUMBOLDT BAY, HUMBOLDT BAY IS EQUALLY READY TO PAY ITS OWN WAY WHEN THE TIME COMES.

ONCE AGAIN FOR MYSELF AND THE OTHER MEMBERS OF THE COMMISSION, THANK YOU FOR THIS OPPORTUNITY TO APPEAR BEFORE YOU TODAY IN SUPPORT OF THE FISCAL YEAR 1996 ENERGY AND WATER REGULAR APPROPRIATIONS MEASURE.

WE LOOK FORWARD TO APPEARING BEFORE THIS SUBCOMMITTEE ON FUTURE OCCASIONS TO PROVIDE PROGRESS REPORTS CONCERNING THE SUCCESSFUL PROSECUTION OF THIS PROJECT.

MR CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE,

PREPARED STATEMENTS OF DONALD F. GULUZZY, GENERAL MANAGER, SAN MATEO COUNTY HARBOR DISTRICT

THE SAN MATEO COUNTY HARBOR DISTRICT IS HERE TODAY TO REQUEST A \$400,000 CONGRESSIONAL APPROPRIATION IN THE ARMY CORPS OF ENGINEERS' OPERATIONS AND MAINTENANCE BUDGET TO FUND MAINTENANCE AND A POSSIBLE EXTENSION OF THE WEST HARBOR OUTER BREAKWATER BUILT BY THE ARMY CORPS OF ENGINEERS IN 1961. THE DISTRICT IS VERY CONCERNED ABOUT THE PHYSICAL CONDITION OF THE ENTIRE BREAKWATER, AND "BREECHING" OF THE LAND AREA WHICH WILL CAUSE POTENTIALLY SERIOUS EROSION PROBLEMS IN THE FUTURE. THE SAN MATEO COUNTY HARBOR DISTRICT IS ALSO EXPERIENCING SERIOUS OVERTOPPING OF THIS BREAKWATER AND THE RAPID INCREASE IN SEDIMENT DISPOSITION FROM BREAKWATER FAILURE. THESE PROBLEMS ARE VERY SERIOUS AND MUST BE ADDRESSED IMMEDIATELY TO AVOID GREAT HARM TO PILLAR POINT HARBOR, THE ONLY COMMERCIAL HARBOR OF REFUGE WHICH EXISTS BETWEEN SAN FRANCISCO AND SANTA CRUZ.

THE AIR FORCE PROPERTY IS ALSO IN DANGER OF BEING ERODED TO THE POINT WHERE A SEVERE SOUTHEASTERN STORM CAN CAUSE SLOPE FAILURE, SERIOUSLY DAMAGE OUR BREAKWATER, COMMERCIAL VESSELS AND PROPERTY WITHIN PILLAR POINT HARBOR. ADDITIONALLY, THE OVERTOPPING OCCURRING AT THE WEST BREAKWATER WILL NECESSITATE THE NEED FOR MAINTENANCE DREDGING IN THE NEAR FUTURE, A PROBLEM AND COST WHICH CAN AND SHOULD BE AVOIDED BY QUICK ACTION NOW. THE DISTRICT IS ALSO CONCERNED ABOUT THE POTENTIAL LOSS OF LIFE

AND PROPERTY IF THIS AREA IS NOT EVALUATED AND/OR REPAIRED BY THE ARMY CORPS OF ENGINEERS IMMEDIATELY.

Thank you, Mr. Chairman, for allowing me to testify in support of the San Mateo County Harbor District's request for a \$400,000 appropriation in the FISCAL YEAR 1996 Corps' budget.

The San Mateo County Harbor District is a county-wide special district in Northern California, near San Francisco.

The San Mateo County Harbor District is responsible for operating, developing and maintaining two small craft marinas and harbors: Oyster Point Marina/Park in South San Francisco and Pillar Point Harbor near Half Moon Bay, CA.

THE SAN MATEO COUNTY HARBOR DISTRICT IS HERE TODAY TO REQUEST CONGRESSIONAL SUPPORT FOR AN ADDITIONAL APPROPRIATION OF \$300,000 TO COMPLETE A RECONNAISSANCE STUDY AND INITIATE A FEASIBILITY STUDY TO DETERMINE THE DEGREE OF FEDERAL INTEREST AT PILLAR POINT HARBOR NEAR HALF MOON BAY, WHICH IS A VERY ACTIVE COMMERCIAL FISHING PORT. IN 1992, PILLAR POINT HARBOR LANDED ALMOST 10 MILLION POUNDS OF FISH VALUED IN EXCESS OF \$4.8 MILLION.

THE DISTRICT AND ACOE FORGED A PARTNERSHIP IN THE LATE "60s" TO BUILD A 2,620 FOOT WEST OUTER BREAKWATER AND A 3,670 FOOT EAST OUTER BREAKWATER TO CREATE A SAFE HARBOR OF REFUGE FOR ALL THE BOATERS WHO HAD NO SAFE PORT BETWEEN SAN FRANCISCO AND SANTA CRUZ, AN AREA COMPRISING 30+ MILES OF COASTLINE.

THE HARBOR DISTRICT HAS ITS OWN SEARCH AND RESCUE UNIT WHICH AVERAGES BETWEEN 80-120 RESCUES EVERY YEAR. OUR SEARCH AND RESCUE SERVICE HAS SAVED OVER 500 LIVES AND OVER \$15 MILLION IN PERSONAL PROPERTY OVER THE LAST 20 YEARS; WE HAVE ALSO

ELIMINATED THE NEED FOR A COAST GUARD FACILITY AT OUR HARBOR WHICH RESULTS IN SIGNIFICANT SAVINGS TO THE FEDERAL GOVERNMENT. OUR PARTNERSHIP WITH THE COAST GUARD HAS BEEN MUTUALLY BENEFICIAL; IN FACT, THE COAST GUARD HAS ISSUED SEVEN COMMENDATIONS TO DISTRICT STAFF SINCE 1982 FOR OUR SEARCH AND RESCUE EFFORTS. A COPY OF THESE COMMENDATIONS ARE ENCLOSED WITH THIS STATEMENT FOR YOUR REVIEW.

A FACT SHEET PROVIDING MORE DETAIL ON DISTRICT SEARCH AND RESCUE SERVICES IS ALSO ENCLOSED FOR THE RECORD.

PILLAR POINT HARBOR HAS NEVER REQUIRED ANY DREDGING OR OTHER MAJOR WORK FOR ONE THIRD OF A CENTURY. IT NOW REQUIRES DREDGING AND OTHER RELATED NAVIGATION AND WATER RESOURCES WORK.

A COMPLETED RECONNAISSANCE STUDY AND FEASIBILITY REPORT WOULD DETERMINE IF FEDERAL PARTICIPATION IS WARRANTED AND IN THE NATIONAL INTEREST. WE STRONGLY BELIEVE THAT OUR INTEREST IS IN THE PUBLIC INTEREST AND IS A WORTHWHILE PUBLIC INVESTMENT FOR THE COUNTRY.

THANK YOU, MR. CHAIRMAN, FOR ALLOWING ME TO TESTIFY IN SUPPORT OF OUR REQUEST FOR AN ADDITIONAL \$300,000 APPROPRIATION IN THE CORPS' BUDGET.

Mr. Robert McMahon
Pillar Point Harbormaster
#1 Johnson Pier
Half Moon Bay, CA 94019

21 February 1995

Dear Mr. McMahon:

Thank you for your outstanding response during two dangerous search and rescue cases that occurred on 18 February 1995.

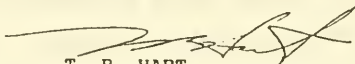
In the first case, you responded to a Mayday call from the S/V CIRCE, a 30 foot sloop that had run aground on the rocks at the

Pillar Point entrance. Shortly after getting underway you suffered an engine casualty, but continued to proceed to the scene. You expertly maneuvered to pass a towline on the CIRCE, and instructed her crew on the hookup. You had the vessel safely in tow when our helicopter arrived on scene, and no further assistance was required of us.

Less than an hour later, another Mayday call came in from the S/V MARY THREE, reporting that she was aground on the rocks on the north side of Pillar Point. You arrived on scene, but were unable to get to the vessel because of the rocks and bad weather in the vicinity. You quickly assessed the situation and informed us that it was too dangerous for our helicopter to make a rescue because of the close proximity of cliffs combined with the fog and darkness. Once on shore you maintained communications with us, providing experienced, precise information to both our controller and the helicopter on the shoreside activity.

Your assistance in both of these cases was outstanding. Your professional and thorough reports while you were on scene as our "eyes" made our job much easier. Your quick response helped save five lives and thousands of dollars in property. I commend you for your professionalism and skill.

Sincerely,



T. P. HART
Captain, U. S. Coast Guard
Commander, USCG Group San Francisco

June 03, 1993

Bob McMahon
Harbor Master
San Mateo County Harbor District
One Johnson Pier
P.O. Box 39
El Granada, CA 94018


Dear Sir:

It is my pleasure to thank you and all of the other officers who assisted the Immigration and Naturalization Service (INS) with the Chinese smuggling case on June 02, 1993.

If it were not for your officers prompt and intelligently coordinated efforts, the INS would have lost critical physical evidence in support of our smuggling case.

I would like to complement your officers on the enthusiasm and professionalism they exhibited during the ordeal. On behalf of the Special Agents and their supervisors from the Investigations Branch, I wish thank you and your officers for a job well done.

Sincerely,



Joseph F. Brandon Jr.
Assistant District Director
for Investigations
San Francisco, California

DEPARTMENT OF TRANSPORTATION
 UNITED STATES COAST GUARD



Public Service Commendation
 IN RECOGNITION *of notable services which have
 assisted greatly in furthering the aims and
 functions of the Coast Guard*

This certificate is awarded to Robert McMahan

Executed this 13th day of August, 1986

at Alameda, California

John D. Castilla
 Vice Admiral John D. Castilla
 United States Coast Guard
 Commander, Twelfth Coast Guard District

Public Service Commendation

10

Robert A. McMahon
Pillar Point Harbor Master

Pillar Point Harbor is located 27 miles south of the Golden Gate on the rugged California coast. The nearest Coast Guard search and rescue facility is a minimum of two hours away, and more often four to six hours away, depending on weather and sea conditions.

On numerous occasions, Robert McMahon has been the first on scene to render aid to stricken mariners, often at great risk to his vessel and crew. He has stayed on scene for long hours until the cases were completed, supplying the Coast Guard with onscene communications.

On October 24, 1985, the fishing vessel Cuu Long became disabled. McMahon provided a Vietnamese interpreter to assist the Coast Guard with communications, and closely followed the case until the vessel was safely moored at Pillar Point Harbor.

During severe weather, in December 1985, the fishing vessel Wynn D II began taking on water, and minutes later the sailing vessel Girlfriend III called a mayday. McMahon mustered a boat and crew for assistance. Due to excessive radio traffic on channel 16, McMahon coordinated his rescue effort with Coast Guard Group San Francisco by landline. He also coordinated a beach search of the entire Half Moon Bay coastline looking for survivors. He stayed on the case to its conclusion some 24 hours later.

On February 22, 1986, a vessel capsized outside Pillar Point Harbor during rough seas. Again, at great risk to himself and his crew, McMahon assisted the Coast Guard in the rescue of two people.

These are but a few examples of McMahon's lifesaving services, and assistance to the United States Coast Guard with its search and rescue missions. Such courage, eagerness and dedication is heartily commended by the United States Coast Guard, and is in keeping with the highest traditions of the sea.

DEPARTMENT OF TRANSPORTATION
 UNITED STATES COAST GUARD



Public Service Commendation

IN RECOGNITION *of notable services which have
 assisted greatly in furthering the aims and
 functions of the Coast Guard*

This certificate is awarded to

ROBERT A. MCMAHON

Executed this 14th *day of* April, 1983

at San Francisco, California

VICE ADMIRAL CHARLES E. LARKIN, USCG
 Commander, 12th Coast Guard District
 By direction of the Commandant

DEPARTMENT OF TRANSPORTATION
 UNITED STATES COAST GUARD



Public Service Commendation

IN RECOGNITION *of notable services which have
 assisted greatly in furthering the aims and
 functions of the Coast Guard*

This certificate is awarded to

BOB MCMAHON
 ROBERT HANSEN
 DON COATS

DAN TEMKO
 RICK KREBS
 ALAN CATTERSON

JOHN DRAPER
 SCOTT COOK
 DAVE LEWIS

Executed this 7TH *day of* OCTOBER 1992

at LONG BEACH, CALIFORNIA

M. E. GILBERT
 Rear Admiral, U. S. Coast Guard
 Commander, 11th Coast Guard District

Public Service Commendation

to

PILLAR POINT HARBOR PATROL
SAN MATEO COUNTY HARBOR DISTRICT, CALIFORNIA

For continued exemplary service to the boating community in the advancement of the Coast Guard's mission; Search and Rescue, Recreational and Commercial Vessel Safety and Marine Environmental Protection. From January 1, 1990 to July 15, 1992, Pillar Point Harbor Patrol completed 200 search and rescue cases and 40 boating safety cases. As a result of their quick and well trained response over 20 persons were saved from life threatening situations and \$250,000 worth of property recovered. Pillar Point Harbor Patrol Boat RADON is the only search and rescue resource available 24 hours a day, 365 days a year between the Golden Gate and Santa Cruz and they have gained a well deserved reputation of quick response and reliability.

SAN MATEO COUNTY HARBOR DISTRICT

PILLAR POINT HARBOR - HALF MOON BAY, CA

SEARCH AND RESCUE SERVICE - FACT SHEET

The San Mateo County Harbor District has been providing commercial fishermen and recreational boaters with Search and Rescue services (SAR) for over 20 years of its existence. The District has annually averaged 80-120 rescues per year which has resulted in saving over 500 lives and millions of dollars in personal property for various boaters who were in danger of losing their property or lives when their boats failed in some way while on the Pacific Ocean.

The Harbor District has been utilizing a 32-foot fiberglass boat called the Radon since 1972. This boat has been an excellent vessel with which to save lives and tow mariners who have been in distress. The Pillar Point Harbor Master and staff have exhibited extraordinary courage by braving the ravages of the Pacific Ocean during dangerous storms, in the middle of the night, in heavy fog, and on

other occasions when no other vessel was available to protect the lives and property of San Mateo County boaters.

The Pillar Point Harbor staff has been commended by the United States Coast Guard, the California State Department of Boating and Waterways and many boaters who have been saved by their heroic efforts in the past.

In 1989, the Harbor District procured approximately \$10,000 in grant funds from the Department of Boating and Waterways toward the purchase of two new gasoline engines for the search and rescue vessel. The Harbor District invested over \$27,000 for the purchase of these engines which has resulted in a modern up-to-date power plant which will continue to serve the boaters of San Mateo County in the future.

The Harbor District has expended in excess of \$100,000 over the years to maintain its SAR vessel. The District annually expends over \$60,000 per year to operate and staff its Search and Rescue Service and does not recover its costs from the public whose property and lives have been repeatedly saved by Harbor District staff.

**TESTIMONY PRESENTED BY LARRY STEFFEN, HARBOR MASTER
THE BIGGEST STORM ON RECORD TO EVER HIT MONTEREY COUNTY HAS SUNK
MOSS LANDING HARBOR, CALIFORNIA.**

The week prior to the big storm that devastated the central California coast earlier this month, weather forecasters had issued warnings that the up-coming storm packed record-setting moisture and was dangerous. While the storm stalled off the central California coast for several days, the Moss Landing Harbor District staff and vessel-owners made the usual pre-storm preparations securing vessels, warning vessel owners and checking dock lines.

As the storm rolled onto the central coast over the weekend, heavy rains set all-time records and the already soaked watershed began to flood and levies failed in Carmel Valley, Castroville, Pajaro, and the Salinas Valley. Excessive rainwater run-off into the 125 mile long north-flowing Salinas River flooded the lower Salinas River areas of Spreckles, Castroville and destroyed homes and farmland. Up-stream of Moss Landing Harbor, floodwaters backed up behind the Portrero Road tidegates and high berm which protected the harbor.

The Harbor staff had watched flood watch warnings all weekend and by early Sunday afternoon, had reported to the harbor to notify vessel owners that the South Harbor was at risk. The concern was that the Potrero Road tidegates upstream from the harbor could fail at any time and wash persons, vessels and docks out to sea. The rising Salinas River flood water had already plugged Portrero Road and all South Harbor docks were evacuated by late Sunday afternoon, except for vessel crews. The Monterey County Public Works Department was forced to evacuate their emergency crew and heavy equipment from the Portrero Road tidegates by dusk.

Into the night, the Harbor District continued to notify vessel owners of immediate risk to their vessels. Since Moss Landing Harbor was isolated from the north and south by flooding, many vessel owners could not get into Moss Landing Harbor to move their vessels. By 9:00 P.M., seven large commercial vessels did manage to leave Moss Landing Harbor for the safety of Monterey Harbor fifteen miles southwest. Everyone was well aware that if the Potero Road berm failed suddenly, backed-up flood waters would have washed the entire South Moss Landing Harbor out into Monterey Bay. Fortunately, as the Potrero Road failed, there was a high tide at the time, which acted as a "shock absorber" and absorbed the 20 foot head of water on the up-stream side of the Portrero Road berm.

By 11:00 P.M., when the Portrero Road berm failed, the Salinas River was rushing through South Harbor in excess of 20 miles per hour. Large commercial fishing and recreation vessels were laid over at 45 degrees and the docks had buckled under the strain. Finger docks and large vessels swung 50 degrees as the tremendous water force pushed vessels up against each other. The main dock began to give way, pilings broke and as a last resort, the harbor work crew and volunteers secured heavy lines from vessels, docks and pilings to the county Sandholdt Bridge up stream. The county bridge actually held the South Harbor vessels, docks and pilings through the crisis which lasted until 5:00 A.M. Monday morning.

Damage to docks and pilings from the storm and flooding is estimated at less than \$500,000.00 and the Harbor District is presently making repairs. FEMA and the Calif. State Office of Emergency Services (OES) have completed an initial damage survey, however the Harbor District has identified heavy siltation in the harbor which creates an economic and safety risk to the commercial fishing fleet and reasearch vessels in the harbor which requires immediate action.

AT THIS TIME, THE MOSS LANDING HARBOR DISTRICT REQUESTS THE FOLLOWING FEDERAL ASSISTANCE:

1. WAIVER OF THE EPA "GREEN BOOK" PRE-DREDGE TESTING CRITERIA TO ALLOW IMMEDIATE DREDGING OF 15,000 CUBIC YARDS OF SEDIMENT BY THE MOSS LANDING HARBOR DISTRICT, AND;

2. A BUDGETARY "ADD-ON" IN 1996 PRESIDENTS' BUDGET FOR THE THE U.S. ARMY CORPS OF ENGINEERS 1996 BUDGET OF \$100,000.00 TO COMPLETE A RECONNAISSANCE STUDY AND UP-LAND DISPOSAL PLAN FOR MOSS LANDING HARBOR.

PREPARED STATEMENT OF ALEXANDER KRYGSMAN, PORT DIRECTOR OF THE PORT OF STOCKTON, CA

Mr Chairman.

I am Alexander Krygsman, Port Director of the **Port of Stockton** in Stockton, California.

The San Francisco Bay to Stockton Ship Channels Project is an authorized project, presently under construction.

The **Port of Stockton** is primarily a bulk port that serves industry and agriculture in the San Joaquin Valley in California, and the bulk imports and exports of the Western States, including the coal areas of these States.

The **Port of Stockton** recognized as far back as 1952 that deeper channels would be needed for the movements of bulk cargoes and requested the Corps of Engineers to deepen the channel in 1952. Coal, grain, fertilizers and many other bulk materials require deeper channels to serve the larger bulk carriers.

The Nation needs ports that can handle larger, more economical and more fuel-efficient vessels close to the production areas, both agricultural and industrial, to conserve energy.

The **Port of Stockton** is such a port.

The dredging of the Stockton Channel portion of the project was completed in 1987. A copy of the **Port of Stockton's** most recent annual report is attached. Cargo volume has increased since the dredging of the Stockton Channel was completed; and the project is certainly paying off.

Therefore, we have requested the Corps of Engineers for a potential new navigation study to deepen the Channel further to forty (40) feet or more, if economically feasible.

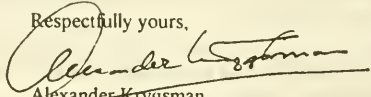
For the 1996 fiscal year, we are requesting six hundred fifty thousand dollars (\$650,000) for this study. Because this study has to be coordinated for proper timing with the continuing construction of the John F. Baldwin Channel, no funds were requested for the 1994 fiscal year for

the study. However, with the progress of the Baldwin Channel project, now is the time to do this study.

This is not just a new study. This study, and the eventual construction, is closely tied to the John F. Baldwin Channel construction, and this project needs to be timed appropriately with the John F. Baldwin Channel construction. Deferring six hundred fifty thousand dollars (\$650,000) now could cost millions in extra cost later.

We urge you to appropriate six hundred fifty thousand dollars (\$650,000) for the Stockton Deep Water Channel Recon Report. We also strongly urge that two million dollars (\$2,000,000) be appropriated to maintain the channels so that the benefits may continue to accrue.

Respectfully yours,



Alexander Krygsman
Director, Port of Stockton
Stockton, California

**PREPARED STATEMENT OF BRIAN E. FOSS, PORT DIRECTOR, SANTA CRUZ
PORT DISTRICT**

BACKGROUND:

In 1986, the Secretary and the Santa Cruz Port District joint-ventured a dredging system for Santa Cruz Small Craft Harbor. It now serves marine commerce and contributes to California's economic recovery. This partnership has been an enormous success and has made the harbor the year-round, all-weather, regional facility it was envisioned to be.

However, the existing system deserves several modifications:

- It is in force only to 2014, which is far short of the system's life;
- It is costly beyond the intent of the 1958 enabling legislation, and the 1986 Cooperative Agreement between the Port District and the Army.

We believe this is an oversight. The Port District, therefore, has proposed to Assistant Secretary of the Army for Public Works, Hon. John Zirschky, that the financial equities be changed. For your advice, a complete proposal document is attached. In exchange, the Port District is prepared to extend its commitment to continue to execute the federal O & M mission to 2024.

In this period of restricted federal and local resources, it is important to demonstrate what can be accomplished with federal/local partnering. This joint-venture has been a marquee federal budgetary reduction project. It needs only refinement to push it out to 2024.

APPROPRIATION REQUEST:

In anticipation of a change in the cost share formula, the Port District requests that the Committee appropriate \$147,000 as the federal share of the 1996 dredging operation costs of maintaining the Santa Cruz harbor entrance.

A complete justification for the cost share formula change follows.

HISTORY OF THE SANTA CRUZ SMALL CRAFT HARBOR FEDERAL PROJECT

Santa Cruz Small Craft Harbor was enabled as a federal project by 1958 legislative act (HD 357). Construction was completed in 1964. Today the harbor accommodates 1,200 recreational and commercial boats, as well as 20,000 visiting boats annually.

Major shoaling problems have plagued the entrance since its inception. Over 200,000 cubic yards of sand must be cleared from the entrance each year. Prior to 1986, entrance dredging was done at federal expense, by contract. This system was expensive and the product unacceptable. The contract was let in the spring of each year and the harbor was made useable and safe only after three to four months of dangerously shoaled conditions.

The contract cost to the federal government was enormous -- over \$1 million in the final year of contract dredging (1985). The cost to the public was hundreds of lost recreational and commercial user days and hundreds of boating accidents, including three fatalities. In addition, Port District and U. S. Coast Guard patrol vessels were prevented from delivering needed rescue services to Monterey Bay users.

The problem was readdressed in 1984, when Congress, the U. S. Army Corps of Engineers, and the Santa Cruz Port District agreed to joint-venture a dredging system with the Port District taking operational responsibility. The cost-sharing formula was extrapolated from the 1958 House Document language, which took no account of inflation and which greatly underestimated the volume of the shoaling problem. The 1984 Water Resource Development Act set forth the basic terms of the joint venture.

BYPASS IMPLEMENTATION

The dredging system was implemented in the fall of 1986. The Port District has operated the system since that time with extraordinary success. The dredge "Seabright," and attendant system, have kept the entrance open and useable continuously since November, 1986. This joint-venture is a shining example of what a federal / local partnership can accomplish. What was previously a crippled project; a liability; and an embarrassment to all parties, is now a model success story.

The 1984 Water Resources Development Act also authorized a study of the Santa Cruz entrance to determine if the 200,000 cubic yards of sand entering the harbor each year could be mitigated so that dredging time and effort could be reduced.

1992 RECONNAISSANCE STUDY

The reconnaissance study was completed in 1992. It concluded that there was no cost effective means to significantly improve on the current "Seabright" dredge system, or to reduce the 200,000 cubic yards of material entering the harbor. This was disappointing to the Port District because the cost of dredging, \$548,000+ per year, is quite burdensome to the Port District's small financial resources.

Armed with knowledge that the current system is operationally effective, and that it is the only foreseeable solution, the Port District proposes that the Cooperative Agreement be made more equitable and then extended to 2024.

NEW COST SHARING FORMULA

The 1958 House Document 357 estimated the littoral drift at between 30,000 cubic yards of sand and 300,000 cubic yards of sand. In reality the drift is 400,000 cubic yards. The House Document set the general and bypass capital cost sharing formula at:

Federal share	64.9%
Local share	35.1%

The federal share of the yearly operating cost was \$31,000 (1956 dollars). In the 1986 Cooperative Agreement the \$31,000+ was brought forward and capitalized, giving the Port District \$389,662 to help with its share of the system capital costs.

Actual system cost	\$2.7 million	
Federal share 64.9% =		\$1,752,300
Plus present value of		
\$35,000 1984-2014 =		\$ 389,662
Local share 35.1% =		\$ 606,390

		\$2,748,352

This valuing of the \$31,000 is the crux of the injustice that was unwittingly done. In 1958, \$31,000 was meant to be a "significant" portion of the yearly cost. This is acknowledged in pages 32 and 33 of House Document 357.

"In lieu of maintenance of the dredged general navigation channels, the United States would contribute a maximum of \$31,000 annually as the federal share of the cost of the bypassing system.

The sum of \$31,000 represents the estimated annual cost of maintenance of the navigation channels for a littoral transport rate averaging 25,000 cubic yards annually."

The \$31,000 represented 100% of 25,000 cubic yards dredged at \$1.24/yard. The 25,000 cubic yards is some eight times less than the actual 200,000+ yards being dredged yearly.

The point that the Port District stresses is one of equity in bringing the \$31,000 yearly federal contribution to a current value. In doing so, this would make the federal share \$181,629, less the already contributed \$35,000/year = \$146,629.

This would result in a local/federal cost share of:

Federal share	\$146,629
Local share	\$401,921

Current dredging budget	\$548,550

This is still an extraordinary program for the federal government. It is much less than the historical cost share for the entire project (federal 64.9%/local 35.1%). It continues to save the federal government approximately \$850,000/year in dredging costs. This would be \$25.5 million to 2024 (in current dollars).

CONCLUSION

The conclusions of the 1992 Reconnaissance Study have put the harbor dredging program in a new light. The Port District accepts the conclusion that mechanical dredging is the only assured solution. The current system is effective, but very costly. The Port is willing to extend its commitment as local sponsor and to insure the longevity of the federal project. In exchange, the Port needs a more equitable cost share. An inflation index to the original partnership concept is a logical and reasonable proposal.

BENEFITS OF THIS PROPOSAL

- It continues a system which has created a safe, all year-round, all-weather, regional harbor.
- Is a model of what federal / local partnering can accomplish.

- Even after the new cost share arrangement, it continues to save the federal government approximately \$850,000 per year. (Total estimate 1995-2024 = \$25.5 million)
- It extends the life and insures sponsorship of the project to 2024. (No guidance exists for sponsorship after 2014)
- The Port District provides all maintenance, up-keep and replacement of the system to 2024.
- New financial formula allows the Port District to take on extended responsibility.

ATTACHMENT #1

Santa Cruz Port District / U. S. Corps of Engineers Cooperative Dredging Agreement

Proposed Cost Share Formula Detail

Federal Contribution:

1956 dollars	\$ 31,000
Dept. of Labor Statistics Index, ¹	
1956 dollars to 10/1/94	X 5.859

Current dollar amount	\$181,629
LESS value of capitalized contribution as per 1986 Cooperative Agreement to 2014 ²	\$ -35,000 ³

	\$146,629 ⁴

1. CPI-U SF/OAK/SJ Index = 1956 = 25.5 = \$31,000; 1994 = 149.4 = \$181,629

2. After 2014, amount would no longer be discounted for capital value of \$35,000

3. H.D. 357 used \$31,000 as the federal contribution. The 1986 Cooperative Agreement used \$35,000

4. Value should continue to be indexed for inflation for life of project.

PREPARED STATEMENT OF RICHARD W. PARSONS, GENERAL MANAGER,
VENTURA PORT DISTRICT

The Ventura Port District respectfully requests that the Congress:

Support the Army Corps of Engineers FY 95 Civil Works Budget request of \$2,288,000 for the maintenance dredging of the harbor's entrance channel and sand traps.

BACKGROUND

Ventura Harbor is located along the Southern California coastline in the City of San Buenaventura, approximately 60 miles northwest of the City of Los Angeles. The harbor opened in 1963. Annual dredging of the harbor entrance area is usually necessary in order to assure a navigationally adequate channel. In 1968, the 90th Congress made the harbor a Federal project and committed the U.S. Army Corps of Engineers to provide maintenance dredging and a solution to the entrance shoaling problem. A detached breakwater and sand trap area, completed by the Corps of Engineers in 1972, alleviated some of the more damaging difficulties but continuing navigational problems persisted. To remedy those problems a cost shared \$7,500,000 navigation project modifying the harbor entrance structures was completed by the Corps of Engineers in August of 1994.

The harbor presently generates more than \$30 million in gross receipts annually. That of course translates into thousands of both direct and indirect jobs. A significant portion of those jobs are associated with the commercial fishing industry and with vessels serving the offshore oil industry. Additionally, the headquarters for the Channel Islands National Park is located within the harbor, and the only commercial vessels transporting the nearly 100,000 visitors per year to and from the Park islands offshore operate out of the harbor. All of the operations of the harbor, particularly those related to commercial fishing, the support boats for the oil industry, and the visitor transport vessels for the Channel Islands National Park are highly dependent upon a navigationally adequate entrance to the harbor.

OPERATIONS & MAINTENANCE NEEDS

Dredging

The Corps of Engineers has determined that \$2,288,000 will be required to perform the routine maintenance dredging of the harbor's entrance channel and sand traps during FY 96. This dredging work is absolutely essential to the continued operation of the harbor. After performance of the FY 96 dredging it is anticipated that the completion of the cost shared navigation improvement project by the Corps of Engineers will enable future dredging to be placed on a biennial cycle.

PREPARED STATEMENT OF PETER K. WILSON, ASSISTANT CITY
ADMINISTRATOR, CITY OF SANTA BARBARA

ISSUE

Funding appropriations provided for the City of Santa Barbara in the Water Resources Development Act of 1995 for:

- . Maintenance dredging of the Federal navigation channel in Santa Barbara Harbor by the U. S. Army Corps Of Engineers. Funding of \$1,600,000.
- . Continue preconstruction engineering and design work for the Santa Barbara Harbor Dredge Acquisition Project. Funding of \$50,000.

Testimony earlier this year before the United States Senate Subcommittee on Transportation and Infrastructure of the Committee On Environment and Public Works stated:

" the Army will discontinue Federal maintenance of harbors that do not generate significant commercial navigation activity and, therefore, do not produce contributions to the Harbor Maintenance Trust Fund."

The City of Santa Barbara Harbor is on the list of harbors for discontinuance of maintenance dredging. Such a drastic change in Federal water resources policy threatens the continued maintenance of the majority of California's twenty-odd small ports and harbors, that collectively serve tens of thousands of Californians, contribute millions of dollars to the State's economy, provide harbors of safe refuge for navigators along California's thousand mile coastline, and provide the backbone to the State's world renowned marine recreation and tourism industry.

BACKGROUND

Section 114 of the River and Harbor Act of 1970 transferred the responsibility for maintaining navigation channels at Santa Barbara Harbor to the Federal Government.

Santa Barbara Harbor is located 90 miles northwest of Los Angeles. The next harbor to the south is Channel Islands Harbor, 25 miles away. The next harbors to the north are Port San Luis and Morro Bay, about 100 miles away. There are no other safe harbors between these two points. The Channel Islands are approximately 23 miles due west.

SANTA BARBARA HARBOR ACTIVITIES

A number of Federal Agencies and missions are supported out of Santa Barbara Harbor:

- . U.S. Coast Guard Cutter Point Camden, 82-foot vessel is based at Santa Barbara and provides Coast Guard operations from Santa Barbara, to the Channel Islands, to Morro Bay. The United States Navy mandated that the Coast Guard receive free and perpetual quarters in Santa Barbara, when the Navy transferred the Naval Reserve Center Building to the City.
- . National Oceanic and Atmospheric Administration (NOAA) supports the Channel Islands Marine Sanctuary through it's base in Santa Barbara Harbor.
- . The National Parks Service is interested in maintaining a Visitors Information Center for the Channel Islands National Parks at Santa Barbara Harbor.

Commercial fishing:

- . There are about 157 commercial fishing vessels in Santa Barbara Harbor. Commercial fishermen land about 10,900,000 pounds of fish, valued at \$14,600,000.

Other Commercial and Government Vessels:

- . There are about 60 other commercial vessels used for oil platform firefighting and oil spill cleanup, research, sightseeing, underwater diving, towing and salvage, charter and consultant activities.

Recreation Boating:

- . There are about 864 slips used for recreation boating.

Commercial operations:

- . Commercial ocean dependent uses, commercial harbor operations, wharf operations, restaurants and offices provide and additional 13,700,000 pounds of commerce, valued at \$28,900,000.

Total annual value of commerce in Santa Barbara Harbor is \$43,500,000.

CONCLUSION

Funding for the City of Santa Barbara, through the Water Resources Development Act of 1995, is imperative for the continued economic vitality of our municipality, is the basic underpinning of the

revitalization of the Santa Barbara waterfront area, and fundamental to the support of California's number one industry, tourism.

In order to support the Federal mission of maintaining the design depth in the Federal navigational channel in Santa Barbara Harbor an appropriation of \$1,600,000 is necessary.

Efforts are under way to have the City of Santa Barbara assume 100% of the Federal mission of maintaining the navigational channel on the condition that the U.S. Army Corps Of Engineers provide a dredge system to the City. In return the U.S. Army Corps Of Engineers would construct a dredge for the City of Santa Barbara.

This action is being predicated on the success of a similar dredge acquisition project for the Santa Cruz, California Port District, that has since generated cumulative savings to appropriations in the Federal Energy and Water Development budget of \$8,000,000. Hopefully, in return for the City assuming 100% responsibility for dredging the U.S. Army Corps Of Engineers would pay for 100% of the dredge system acquisition expense.

Currently, an appropriation of \$50,000 is necessary to continue the dredge design efforts already in progress.

Thank you for the privilege and opportunity to present the Federal navigational channel dredging needs of the City of Santa Barbara Harbor to your honorable committee.

**LETTER FROM STAN WISNIEWSKI, DIRECTOR, COUNTY OF LOS ANGELES,
DEPARTMENT OF BEACHES AND HARBORS**

March 22, 1995

Honorable Pete V. Domenici, Chairman
Committee on Energy and Water Development
United States Senate
Committee on Appropriations
136 Senate Hart Office Building
Washington, D.C. 20510-6025

Dear Senator Domenici:

**FY 1996 FUNDING FOR SHORELINE PROTECTION STUDY,
MARINA DEL REY DREDGING AND NAVIGATION STUDY**

The Los Angeles County Board of Supervisors respectfully requests The Congress of the United States to include funds in FY 1996 Energy & Water appropriations for the following three projects urgently required to preserve, restore, and maintain vital and precious public purpose assets, the 75 mile shoreline of Los Angeles County and the recreational boating harbor at Marina Del Rey.

Malibu Coastal Area Shoreline Protection Study
(\$200,00)

The winter storms in 1983, 1988 1991 and 1995 caused extensive damage to the Los Angeles County coastline. In 1982-83 and 1988 the El Nino phenomena directly hit the Los Angeles County coast with unusually high tides and caused widespread damage to beaches and shoreline facilities estimated at over \$20 million. While much of the sand has returned to the County's beaches and they appear to be, significantly restored, the beaches remain extremely vulnerable to

future storms Healthy beaches are necessary, natural buffers to protect public facilities from the unpredictable forces of the ocean

We respectfully request your support for funding of \$200,000 included in the President's FY 1996 budget recommendation to continue the feasibility study to develop a Federal project for shoreline protection at those points within Santa Monica Bay that are most vulnerable to future storm attack. Because Los Angeles County has one of the most heavily urbanized and developed shorelines in the country, it is extremely important to fund and complete this study to help prevent future damage to significant public investments in shoreline facilities.

Marina del Rey Entrance Channel Dredging
(\$1,700,000)

The U.S. Army Corps of Engineers is responsible for maintenance dredging of the Marina del Rey entrance channel pursuant to perpetual right of way easement. This is to occur approximately every four years or as storm events dictate. The last dredging took place in 1994 (FY95). However, only about 10% of the shoaling was removed.

Historically, in FY94, \$1.8 million was available for maintenance dredging. Because of environmental complexities, dredging did not take place that year and the funds were reallocated to other Corps projects. In FY95, Congress added \$1,758,000 to the Corps' Operations & Maintenance General funds to dredge Marina del Rey. An additional \$3,550,858 was reprogrammed into the Marina del Rey project from other Corps projects. Thus, a total of \$5,308,858 was available to dredge the Marina's entrance channels. Dredging was completed in December 1994. Navigation restrictions to the entrance have returned since dredging was completed as a result of the severe storm events experienced by Southern California during the month of January 1995. These restrictions on navigation are threatening the ability of the U.S. Coast Guard, County Sheriff, Fire Department and Lifeguards to respond to emergencies. As these agencies form critical core of the LAX Air-Sea Disaster Response Team, it is imperative that the Marina's entrance channel remain open and safely navigable.

There are no funds in the President's FY 1996 budget to conduct maintenance activities within the Marina. However, we request your support to provide an additional \$1.7 million in FY 1996 to redredge the recently deposited sediments within the entrance channels.

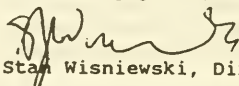
Marina del Rey Harbor Navigation Study
(\$200,000)

Shoaling of the Marina's navigation channel due in part to sediment from the Ballona Creek Flood Control channel is making channel navigation difficult, and has increased the potential for boating accidents. Additionally, contaminants in Ballona Creek sediments create serious difficulties in disposing of the dredged material. Modifications to the existing federal project, including relocation of the Ballona Creek Flood Control outlet, a containment area for disposal of contaminated material and other remediation alternatives are being investigated in the ongoing reconnaissance study. We request you support the \$200,000 included in the President's FY 1996 Budget to complete the reconnaissance study.

The County is aware of the cost-sharing requirements for Corps' feasibility studies, and is able and willing to share costs subject to review of the reconnaissance study results and consideration of county budget priorities at that time.

Every year there are growing demands and shrinking resources, making the allocation of these resources a difficult task. I trust your Committee will recognize the high priority associated with the projects discussed in this letter to protect major public and private shoreline facilities and developments.

Very truly yours,



Stan Wisniewski, Director

MARINA DEL REY, CALIFORNIA

Just as the natural ebb and flow of the powerful seas are constantly influencing our coastlines, the dynamics of how Marina del Rey came to be were also under another type of surge, only these forces were man-made. Political and financial forces were the main influences that shaped the physical development of the Marina as it exists today.

During the mid-1950s, the public was unwilling to support a small craft harbor, which seemed to benefit only a select segment of the overall recreational community, and limited Federal and County funds were available for a recreational marina/regional park. In order to insure financial success, planning efforts and policies were redirected to allow the private sector to lease land parcels with a new marina configuration. The new basin design, which was more sensitive to existing surrounding land uses, infrastructure and vehicular traffic patterns, transformed the Marina from a small craft harbor into a well-organized, successful residential-commercial-recreational urban marina, serving a metropolitan population of over seven million people.

Throughout the planning and design process, special care was given to identifying and parceling land to provide opportunities for public access in order to balance boating and non-boating uses and equitably account for the Marina's impact upon the needs of adjacent communities. In order to ensure quality and compatibility of Marina developments, the County appointed a local Design Control Board to establish Marina del Rey architectural design standards and landscape guidelines, and to govern a review and approval process for any new projects to be built. Leases were designated to be sixty years, with terms beginning to expire in the year 2020.

As the Marina heads into the next century, considerations for future planning and design are underway. Marina del Rey will never be thought of as a finished product, but instead as a constantly evolving Marina "new town" with an inherent capacity to accept change. Currently, the County continues to strive for an optimum balance between public and private interests, as economic and recreational needs reinforce the Marina's role as a multi-functional activity center for the Los Angeles metropolitan area.

In the near future, public users will need additional Marina facilities, such as the development of new parks and commercial areas designed to serve tourists, local visitors and residents. Also, specialized, more permanent users who desire to live, work, shop and enjoy recreation in a marine environment will require more professional services and facilities tailored to their needs. These challenges can be met.

Today, Marina del Rey is an indispensable social, environmental and economic success, and has become a role model for other urban marinas throughout the world.

MARINA DEL REY FACT SHEET

PUBLIC RECREATION/EDUCATIONAL FACILITIES

Burton W. Chace Park; Admiralty Park; Mother's Beach; regattas, crew races, boat parades, sailing races, park concerts, harbor cruises; handicapped swim ramps, children's playground, boat rentals and sailing instruction, bicycle path (part of 20-mile coastal path), north jetty promenade and view piers, vista points, fishing docks, Marina Information Center, County Library with large nautical section.

BOATING FACILITIES

6,100 boatslips, beach launching areas for hand-carried or RV-transported boats, sailing lagoon, dry storage for boats, yacht clubs, repair yards, fuel dock & pump-out station, live bait, charters, transient boat docks, boat sales and brokerages.

CIVIC CONTRIBUTION/ECONOMIC IMPACT

Community with current population of 10,000; more than 200 individual businesses provide 6,000-8,000 jobs; taxes generated by leases provide significant tax revenue for County, City schools, special districts, etc; direct freeway access via Marina Freeway (Route 90).

MARINA ENVIRONMENTAL STATISTICS

804-acre site (403 water, 401 land); 2,340 feet off-shore breakwater; 2 miles main channel (1,000 feet wide), 3 miles side basins (600 feet wide), 8 miles concrete bulkhead; 6 miles landscaped roadways, all utilities underground.

PROVIDE DEVELOPMENT OF FACILITIES

4 hotels, 2 motels, 16 apartment complexes, 26 restaurants, 7 yacht clubs, 12 commercial office buildings.

PUBLIC DEVELOPMENT OF MARINA

Federal:	50% of Main Navigational Features	\$ 4,600,000
State:	Site Acquisitions Loan	2,000,000
County:	Land Acquisition; 50% of Main Navigational Features	15,875,000
County Motor Vehicle Fund:	Perimeter Roads	775,000
Bond Issue:	Site Preparation	<u>13,000,000</u>
Total Initial Cost:		\$36,250,000

INCOME

Revenue from leases (approximately \$21.4 million annually) pays operating expenses; provides for replacement and improvements.

PREPARED STATEMENT OF E.D. ALLEN, CHIEF HARBOR ENGINEER FOR THE PORT OF LONG BEACH

I am E. D. Allen, Chief Harbor Engineer for the Port of Long Beach, California. I have been authorized by the Board of Harbor Commissioners of the City of Long Beach to represent the Port of Long Beach in regard to appropriations for the Los Angeles and Long Beach Harbors Model Study; Planning, Engineering, and Design and Construction for the 2020 Plan; Los Angeles River maintenance dredging; and a Reconnaissance Study for beach erosion.

Harbors Model Maintenance

The Water Resources Development Act of 1976, Section 123, authorized the Chief of Engineers to operate and maintain the Los Angeles-Long Beach Harbor Hydraulic Model at the U. S. Army Corps of Engineers Waterways Experiment Station in Vicksburg, Mississippi as part of the Los Angeles and Long Beach Harbors Model Study. This model encompasses both port complexes in San Pedro Bay which are ports of national significance. The hydraulic model, along with several numeric models, provides state-of-the-art methodology that can be used on the San Pedro Bay ports and on many other harbor complexes. In addition, the Port, as the local agency, is assisting in the Corps' effort to provide continuous wave-gauge data by providing necessary support personnel and equipment for the maintenance of the portions of the system located at the Port.

In fiscal year 1995, \$156,000 was appropriated for maintenance of the physical model of San Pedro Bay. During this time, the Port also utilized the model to analyze necessary navigation-related modifications to the recently completed portion of our expansion plan. It is necessary that the model remain ready for service such as this. Funding in fiscal year 1996, in the amount of \$160,000, would continue annual maintenance on the model. Therefore, Congress is respectfully requested to appropriate \$160,000 for fiscal year 1996 to perform this work.

2020 Plan - Channel Dredging (Planning, Engineering, and Design)

The Port of Long Beach has developed a long-range master plan, referred to as the 2020 Plan, which demonstrates the need for new navigation channels and additional landfill development through the year 2020. In fiscal year 1995 \$1,500,000 was appropriated to do a feasibility study of channel deepening outside the federal breakwater.

Section 201(b) of the Water Resources Development Act of 1986 authorized construction of the 2020 Plan upon recommendations of a feasibility report and completion of a favorable Chief of Engineers Report.

The Port of Long Beach has started the first phase of the 2020 Plan with the construction of its Pier J expansion project, which includes dredging the Long Beach Main Channel to at least a -76' depth. Together with the approach channel deepening outside the federal breakwater, the dredging is being evaluated for Federal interest in the feasibility study because it permits deeper draft crude petroleum vessels to call at the Port of Long Beach.

The feasibility study for completion of the Long Beach portion of the 2020 Plan will be completed by December 1995. The next step is to proceed to the

actual Planning, Engineering, and Design (PED) Phase. Therefore, it is urged that the Committee approve an appropriation of \$750,000 for fiscal year 1996 to complete the PED designs, plans, and specifications for the Long Beach portion of the 2020 Plan. This will allow for construction to begin in 1997.

2020 Plan - Wave Gage Data Acquisition (Construction)

The Port of Long Beach also concurs with and supports the recommendation of the California Marine Affairs and Navigation Conference (C-MANC) and the Port of Los Angeles on continued federal funding of the wave gage (prototype) data acquisition and analysis program. This program began in 1987 to develop data for the design of the 2020 Plan port expansion and navigation improvements. This program has now evolved to construction monitoring and model verification which needs to continue in order to confirm expected levels of impacts of the expansion plans. It is therefore requested that \$325,000 for fiscal year 1996 be provided to sustain this needed program.

Los Angeles River Maintenance Dredging

The Port of Long Beach also concurs with and supports the recommendation of C-MANC and the City of Long Beach on federal funding for remedial maintenance dredging to remove accumulated flood-deposited silt in the mouth of the Los Angeles River. During the recent storms of the winter of 1995, such flood-deposited silt closed the mouth of the Los Angeles River to navigation. This restricted regularly scheduled water route transportation between the cities of Long Beach and Avalon, creating an economic emergency. Reacting to this emergency, the U. S. Army Corps of Engineers cleared the channel enough to allow for minimal resumption of navigation.

However, substantial quantities of silt remain in the channel, much of which is just upstream of the recently reopened section. These silt deposits create the likelihood of future serious restrictions and safety hazards to commercial and recreational boating activity in, and adjacent to, the Long Beach Harbor District and the associated businesses in Long Beach. Such restrictions and hazards have resulted in accidents and litigation.

In addition, the Port supports the City in recommending these silt deposits be removed on an annual basis as a scheduled work item. As was demonstrated this year, the location of the silt can move dramatically within a few days. The U. S. Army Corps was studying this problem when the recent emergency occurred. In "Project Plan for Los Angeles River Estuary Maintenance Dredging, Long Beach, CA, October 1994" (Project Plan-1994), the Corps of Engineers estimated an average annual deposit of silt in the estuary of 485,000 cubic yards. The rate of such deposits is influenced by operational decisions at the Corps of Engineers' dams located at the headwaters of the river. It is

imperative, for our current operations, that a long range remedy be found for the Los Angeles River mouth, if navigational utility and effective flood control capability is to be maintained.

Although the Projects Plan-1994 cites a memorandum indicating sufficient capacity to effectively accommodate flood waters when released from Sepulveda and Hansen Dams, we are concerned as to how that capacity is maintained over time, given the annual level of silt deposition. The flood flow is also accompanied by a velocity and volume of the river, through the portions of the river historically dredged by the Corps, that was such that the City of Long Beach experienced the loss of, or damage to, navigational buoys, marina mooring facilities, dredging equipment, and the usage by various commercial and recreational vessels. The most recent deposits, despite the emergency channel clearance, has resulted in extensive shoaling that still hinders navigational utility in the area.

It is estimated by the Corps of Engineers, in Project Plan-1994, that maintenance dredging of the channel to a minimum usable width, a project that does not clear all shoaling that hinders navigation, is \$1,900,000. This is a level of dredging that allows for an annual accumulation of almost 175,000 cubic yards of silt deposits beyond what is being dredged and allows for the uncertainty of a rapidly developing shoal in any time of significant storms. An annual expenditure of \$3,000,000 would be necessary to clear all annual silt deposits and prevent an accumulation of that material. Congress is, therefore, requested to appropriate \$3,000,000 for the accomplishment of this critically needed work.

Reconnaissance Study - Beach Erosion

The Port of Long Beach also supports C-MANC and the City of Long Beach on their request for federal funding to initiate a Corps of Engineers reconnaissance study on beach erosion. In southeastern Long Beach, adjacent to the Port's land and channels, and directly opposite the federal breakwater, a beach and seawall protects approximately \$200,000,000 worth of homes. Steady erosion had reduced the beach from an optimum of 175 feet to 30 feet prior to City's efforts in late 1994 to rebuild the beach. This winter's storms have reduced the beach width about 40 percent within one month of completion of the rebuilding.

Recently, the City has also experienced erosion in the west beach area. Although homes are not endangered, public improvements including lifeguard stations, public restrooms, a bicycle and pedestrian trail, and a parking lot are at risk. The cause of the new problem is unclear, indicating the need for a thorough study of the beach erosion problem inside the federal breakwater.

The primary method of protecting the homes has been annual rebuilding, with the building of sand berms during high tides or expected storms. In the past 14 years, the City has invested over \$5,000,000 in capital improvement projects, annual beach rebuilding, and storm protection to control the beach erosion. Despite this effort, in 1989 and 1993, storm waves eroded the beach and breached the protective seawall causing damage to homes. The City is also defending itself against a lawsuit by one of the homeowners who is claiming that the City failed to halt erosion that narrowed the beaches in front of his home to less than the desired width adopted in the 1980 Local Coastal Plan.

It is, therefore, requested that Congress appropriate \$300,000 to initiate a reconnaissance study of the beach erosion problem within the City of Long Beach, which is directly related to the focusing affect the federal breakwater has on this large commercial harbor complex and surrounding beaches.

Attached hereto is Resolution No. HD-1751, adopted by the Board of Harbor Commissioners of the City of Long Beach on March 6, 1995, which contains data relating to the background of the Los Angeles and Long Beach Harbors Model Study, the Los Angeles River dredging, the beach erosion problem in Long Beach, and other related navigation and economic matters. The resolution stresses the need for federal assistance in developing economic, technical and environmental background information essential to the design and permitting of Port facilities vital to regional and national interests. The Port of Long Beach is the largest container port in the United States and is the economic engine driving \$3.5 billion in customs receipts from both Los Angeles and Long Beach ports and jobs for 500,000 people. We are truly a port and harbor of national significance.

We kindly ask that Congress continue its support of these projects in fiscal year 1996 by appropriating the requested funds.

Thank you for permitting me the privilege of this presentation.

RESOLUTION NO. HD-1751

A RESOLUTION OF THE BOARD OF HARBOR
COMMISSIONERS OF THE CITY OF LONG BEACH,
CALIFORNIA, REQUESTING THE CONGRESS OF THE
UNITED STATES TO APPROPRIATE FUNDS TO THE
UNITED STATES ARMY CORPS OF ENGINEERS IN ORDER
TO CONTINUE PLANNING, ENGINEERING AND DESIGN
FOR THE SAN PEDRO BAY 2020 PLAN, TO CONTINUE

THE LOS ANGELES AND LONG BEACH HARBORS MODEL
STUDY RELATING TO IMPROVEMENTS IN SAN PEDRO
BAY, TO CONDUCT MAINTENANCE DREDGING AT THE
MOUTH OF THE LOS ANGELES RIVER AND TO CONDUCT
A RECONNAISSANCE STUDY OF BEACH EROSION

WHEREAS, the Ports of Long Beach and Los Angeles in San Pedro Bay, California, are two of a limited number of sites on the West Coast of the United States which possess the potential for deep water port facilities as recommended in the West Coast Deep Water Port Facility Study conducted by the United States Army Corps of Engineers; and

WHEREAS, the Ports of Long Beach and Los Angeles have a record of both physical and fiscal growth to the extent that together the two are presently handling over 148 million metric revenue tons of cargo annually (fiscal year 1994), and the international cargo handled is valued at over 117 billion dollars annually (calendar year 1993); and

WHEREAS, the growth and activity of the Ports of Long Beach and Los Angeles have a significant regional and national economic effect; and

WHEREAS, in excess of 3.5 billion dollars in federal revenues were collected as United States Customs duties on foreign imports passing through the Ports of Long Beach and Los Angeles during the fiscal year ending September 30, 1993; and

WHEREAS, both Ports are now, and are increasingly becoming, hard-pressed to provide facilities to meet the needs of the shipping industry, and to that end are conducting extensive studies, in conjunction with federal studies, to determine navigational, transportation, and environmental requirements necessary to provide economic and adequate surge-free berthing and cargo handling facilities; and

WHEREAS, all existing land in the Port of Long Beach which can be developed for shipping operations has been utilized or is in

the process of being developed and, in order to meet the needs of the following decade, the design, permitting and construction of new lands must continue; and

WHEREAS, continuation of the studies currently underway by the United States Army Corps of Engineers, consisting of the Los Angeles and Long Beach Harbors Model Study, including maintenance and operation of the San Pedro Bay Hydraulic Model at Vicksburg, Mississippi, as authorized by Section 123 of the Water Resources Development Act of 1976, is needed for use in the design and permitting processes for future landfills for port development; and

WHEREAS, the Port of Long Beach handled over 28 million metric tons of liquid bulk cargo (fiscal year 1994). Because of economies of scale, liquid bulk cargo brought in by deeper draft vessels will have lower transportation costs. However, the existing navigation channel depths leading to the Port limits the size of calling vessels.

WHEREAS, the Los Angeles River is the largest of numerous flood-control channels constructed and maintained jointly by the Los Angeles County Flood Control District and the United States Army Corps of Engineers, and silt deposit from heavy storm runoff in recent years accumulating in the mouth of the Los Angeles River in the City of Long Beach constitutes a restriction and hazard to both commercial and recreational boating; and

WHEREAS, the Board of Harbor Commissioners of the City of Long Beach, as a properly constituted and financially responsible local agency, by its Resolution No. HD-890, adopted August 3, 1965, expressed its intent to enter into such agreements as may be reasonably required to further federal projects for the development and improvement of Long Beach and Los Angeles Harbors; and

WHEREAS, at southeastern Long Beach in front of Alamitos Bay a beach and seawall protects Two Hundred Million Dollars (\$200,000,000) worth of homes. The primary method of protecting the homes has been annual beach rebuilding and sand berms during storms. Steady erosion has reduced the beach from optimum width of 175 feet

to 30 feet and continues to reduce beach width despite rebuilding efforts in 1994. In the past 14 years, the City has invested over Five Million Dollars (\$5,000,000) in capital improvement projects, annual beach rebuilding and storm protection to stop erosion. Despite this effort, in 1989 and 1993, storm waves eroded the beach and breached the protective seawall causing damage to homes.

NOW, THEREFORE, the Board of Harbor Commissioners of the City of Long Beach resolves as follows:

Section 1. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army Corps of Engineers, to maintain the San Pedro Bay Hydraulic Model at the Waterways Experiment Station at Vicksburg, Mississippi, as part of the Los Angeles and Long Beach Harbors Model Study.

Sec. 2. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army Corps of Engineers, to complete the feasibility study and the planning, engineering and design for dredging deeper navigation channels to the Port of Long Beach.

Sec. 3. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army Corps of Engineers, to continue the existing wave gauge (prototype) data acquisition and analysis program.

Sec. 4. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army Corps of Engineers, in conjunction with the Los Angeles County Flood Control District, to engage in the necessary maintenance dredging at the mouth of the Los Angeles River to remove silt deposits which have accumulated at that location.

Sec. 5. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army Corps of Engineers, to engage in a reconnaissance study to develop protective measures to prevent beach erosion within the City of Long Beach.

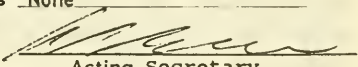
Sec. 6. That the Executive Director of the Long Beach Harbor Department be, and he is hereby, directed to send copies of this resolution to the United States Senators and to Members of the House of Representatives from California, with a letter requesting their assistance in presenting this resolution before the proper Congressional committees.

Sec. 7. That the Executive Director of the Long Beach Harbor Department be, and he is hereby, further directed to send copies of this resolution to the President of the United States; the Director, Office of Management and Budget; the Secretary of the Army; the Chief of Engineers, the Division Engineer-South Pacific Division and the District Engineer-Los Angeles, all of the United States Army Corps of Engineers; and to such other interested persons as he may deem appropriate.

The Secretary of the Board shall certify to the passage of this resolution by the Board of Harbor Commissioners of the City of Long Beach, shall cause the same to be posted in three (3) conspicuous places in the City of Long Beach, and shall cause a certified copy of this resolution to be filed forthwith with the City Clerk of the City of Long Beach and it shall thereupon take effect.

I hereby certify that the foregoing resolution was adopted by the Board of Harbor Commissioners of the City of Long Beach at its meeting of March 6, 1995, by the following vote:

Ayes:	Commissioners <u>Murchison, Bellehumeur, Hearrean</u>
Noes:	Commissioners <u>None</u>
Absent:	Commissioners <u>Hauser, Perez</u>
Not Voting:	Commissioners <u>None</u>


Acting Secretary

PREPARED STATEMENT OF VERNON E. HALL, CHIEF HARBOR ENGINEER,
CITY OF LOS ANGELES HARBOR DEPARTMENT

Mr. Chair and Members of the Subcommittee:

I am Vernon E. Hall, Chief Harbor Engineer for the City of Los Angeles Harbor Department. My testimony, on behalf of the City of Los Angeles, and its Board of Harbor Commissioners, supports the continuation of the federal role in the implementation of major navigation improvements at San Pedro Bay, California.

Pier 300/400 Implementation under the 2020 Development Program

The Commissioners, management and staff of the Port of Los Angeles have been working since early 1985 with the U.S. Army Corps of Engineers on implementation of the initial phase of the 2020 Plan for San Pedro Bay which was authorized in Section 201(b) of the Water Resources Development Act (WRDA) of 1986 (P.L. 99-662) and further sanctioned by Section 104 of WRDA 88 (P.L. 100-371) and Section 102(c) of WRDA 90 (P.L. 101-640). We call this initial phase of the 2020 Plan the Piers 300 and 400 Implementation Program. As you know, the 2020 Plan anticipates the phenomenal growth of the San Pedro Bay Ports of Los Angeles and Long Beach which, today, form one of the largest and most successful port complexes in the world. The Port of Los Angeles, alone, remains the busiest port in the United States, serving, as a principal gateway to the ever-growing Pacific Rim maritime trade. In order to keep pace with projected increases in world commerce through the Port, we are dependent upon continued federal support to maintain our existing channels and to develop even deeper navigation channels which, once constructed, will provide significant increases in federal benefits.

Milestone Events Accomplished

Milestone No. 1: Award of Construction Contract

Today, I am pleased to inform this Subcommittee that on July 14, 1994 the Port of Los Angeles awarded a contract for the construction of the initial stage of the 2020 Plan in Los Angeles Harbor. This initial stage includes dredging new federal navigation channels to existing land at Pier 300 and reclaiming approximately 250 acres of new land at Pier 400. The contractor began work on September 6, 1994 and is currently scheduled for completion in June, 1997.

Milestone No. 2: Maintenance Dredging of Existing Federal Channels

We would like to thank this subcommittee for appropriating requested funds in the Corps of Engineers FY95 budget for maintenance dredging of the Glen Anderson Ship Channel and other existing federal channels in the Port of Los Angeles to a depth of 45 feet below mean lower low water (MLLW). The Los Angeles District Engineer is preparing construction plans and will award a contract for required maintenance dredging this fiscal year as approved by this subcommittee last year. Based on this we are prepared to support the Los Angeles District Engineers' office in accomplishing the required maintenance dredging during FY 1995.

Milestone No. 3: Proposed Credit Agreement

Another significant project milestone achieved is the completion of a credit agreement between the Corps of Engineers and the Port which identifies the federal financial interest in the initial phase of the 2020 Plan. The credit agreement established the federal interest consistent with WRDA 86 and current Corps policy. It also identifies the contractual relationship between the Corps and Port for designing, constructing and monitoring the project. The federal interest is limited to \$108.6 million of the total \$550 million project. The credit agreement was executed by the Port on March 9, 1995 and is currently before the Assistant Secretary of the Army (Civil Works) for execution. The Port of Los Angeles looks forward to future testimony in support of the President's budget for Stage II of the federal project which will include this credit for the work now underway.

Construction Phase

Acknowledging these milestone events, the Administration's FY 1996 budget includes a request for \$100,000 for the construction phase of the federal interest project at Los Angeles Harbor. In addition, we request \$325,000 for continued wave data collection by WES necessary to validate the numerical and physical models used for project design. The Port of Los Angeles fully supports this request which will ensure uninterrupted full project implementation.

Vicksburg Models

During the course of the state-of-the-art design effort undertaken by the Port for the Pier 300 channels and Pier 400 land reclamation, we were able to successfully utilize many of the

advanced modeling and design tools available at the Corps of Engineers' Waterways Experiment Station (WES) in Vicksburg, Mississippi. Eight separate, but related models developed and maintained by the scientists and engineers of WES were used during the design of the Pier 300/400 project by Port engineers and consultants with full participation by the Los Angeles District Engineer's staff. Maintenance of the Vicksburg hydraulic physical model and its prototype data acquisition facilities remains an essential resource for the District Engineer and the Port of Los Angeles. The President's budget request has a modest \$160,000 for ongoing maintenance during FY 1996. The Port fully supports this request.

Summary

In summary, the Port of Los Angeles urges your Subcommittee to include in the FY 1996 budget appropriation, \$425,000 for construction efforts, and \$160,000 for maintenance of the Vicksburg model. The Port of Los Angeles has long valued the understanding exhibited by your Subcommittee of the importance of the Port industry to the economic health of the Nation. This understanding has been backed up by appropriation of scarce federal resources for harbor and navigation projects such as ours.

Thank you, Mr. Chairman, for the opportunity to submit this testimony in support of continued federal activities at the Port of Los Angeles.

PREPARED STATEMENT OF CHARLES W. FOSTER, EXECUTIVE DIRECTOR,
PORT OF OAKLAND

I want to thank you for the opportunity of submitting written testimony in support of appropriations that are under consideration by the Senate Subcommittee on Energy & Water Development. These appropriations, as recommended in the President's budget, and necessary to maintain the ongoing projects, provide \$14-million for continuing construction of the -42' Oakland Harbor Channels, and provide \$2.205-million for annual operation and maintenance related to the Oakland harbor.

We particularly appreciate past actions that have been taken by you and the Senate committee with respect to ongoing appropriations that have

now brought us to the point where actual construction of the -42' Oakland Channel deepening will commence in early May, 1995.

The Oakland Harbor Channel Improvement is a federally authorized project undertaken by the U.S. Army Corps of Engineers. The project was authorized for construction by the Water Resources Development Act of 1986.

The project will deepen the channels to -42 feet, mean lower low water (MLLW), and provide additional navigational improvements. Approximately 5.6 million cubic yards of material must be dredged to provide the necessary channel improvements.

The Corps estimates the annual benefits for Project Year 1 (1997) are approximately \$40 million. Average Annual Benefits (1997-2047) are approximately \$144.5 million. Benefits of the project are derived from:

- A. The use of larger vessels with lower operation cost and lower fuel consumption per ton of cargo carried.
- B. Elimination or reduction of tidal delays.
- C. Improvement in navigation vessel safety and reduction in possibility of collisions or groundings.

As the local cooperating agency for the channel improvements, the Port of Oakland is fully committed to meet its financial obligations as required under the Water Resources Development Act of 1986, with the balance of the project cost to be funded from federal appropriations.

Through strong Administration and Congressional support, with close collaboration with environmental groups, organized labor, and the local community, a three part dredge disposal plan was developed:

- Ocean disposal 55 miles offshore
- 300 acre Wetland Restoration Project using suitable dredged material
- Innovative upland disposal plan on Port property

The Port of Oakland also supports the President's recommendation for the appropriation of \$500,000 for the Sonoma Baylands wetland restoration.

With regard to the future study and disposal site selection implementation, the San Francisco Bay Long Term Management Strategy (LTMS) has focused attention on the future Regional disposal needs and effectively brought all the parties together to develop a responsive dredge disposal plan. I respectfully request your support of an appropriation of \$150,000 for the implementation of the LTMS as recommended in the President's budget. We thank you and the Committee for its support of past appropriations.

The appropriations under consideration today will permit the Corps of Engineers to continue the construction of this project, plus necessary maintenance. The current schedule calls for the Oakland Channel Deepening Project, as described in its authorization, to commence actual dredging in May 1995 and be completed in November 1996.

As I stated earlier, we appreciate the cooperation and support of this committee and join with the California Marine Affairs and Navigation Conference (C-MANC) to urge your approval of the appropriations request as submitted.

PREPARED STATEMENT OF CATHY NOVAK, COUNCIL MEMBER, CITY OF MORRO BAY, CA

Mr. Chairman

The Morro Bay entrance, known universally by its towering rock, is the only all weather commercial/small craft harbor along a 200 mile stretch of the California coast.

This important harbor of refuge and commercial fishing port has been well treated by this distinguished subcommittee. Its appropriations have provided vital public safety improvements.

However, Mr. Chairman, the entrance construction and channel maintenance job is not yet completed. Therefore, the Morro Bay City Council respectfully asks the subcommittee to accept the President's Budget Recommendation for \$124,000 for construction and \$2, 580,000 for maintenance in FY1996.

Finally as a member of Morro Bay's City Council, President of the Morro Bay Commercial Fisherman's Organization and Vice Chairman of the California Seafood Council, I again thank the Congress for its support of Corps work at Morro Bay and also urge continued Congressional support of the West Coast fishing industry, for which Morro Bay is so strategic and which its economy is based.

**PREPARED STATEMENT OF JOHN WOLTER, COOPERATIVE PROJECTS
ENGINEER, CITY OF NEWPORT BEACH, CA**

Honorable Mark O. Hatfield, Chairman
Subcommittee on Energy and Water Development
Committee on Appropriations
131 Dirksen Senate Office Building
Washington D.C. 20510

March 29, 1995

Subject: Statement of the City of Newport Beach before the Committee on
Appropriations March 29, 1995

Dear Mr. Chairman and Members of the Committee,

The City of Newport Beach is in support of the California Marine Affairs and Navigation Conference (CMANC) proposal for the 1996 Federal budget, which proposes funding of several Corps of Engineers studies and projects which affect the City of Newport Beach. In particular the City requests your support for continued funding of the Santa Ana River Mainstem Project which enters the Pacific Ocean adjacent to the City.

The City also supports three other Corps of Engineers projects with funding recommended in the 1996 fiscal year. These are described below:

1. Newport Harbor Entrance Jettys - complete repairs (\$1,750,000)
The Corps' Los Angeles District has completed a condition survey of the Harbor entrance jettys and recommends maintenance and rehabilitation of only the West jetty. Both jettys show signs of storm damage and wear since their construction in the late 1920's and early 1930's. For over 60 years the East jetty has provided public access, which the Corps of Engineers has now recommended closing in lieu of maintenance. The City therefore recommends that a total of \$1,750,000, which includes \$500,000 for concrete repairs to the West jetty, be provided in the 1996 fiscal year under operations and maintenance in the Bill that you are considering.

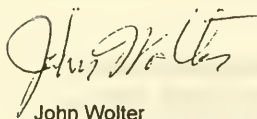
2. The Upper Newport Bay - Feasibility Study (\$250,000)

The Corps' Los Angeles District has completed a reconnaissance report which determined Federal interest in the project and recommended preparation of a feasibility study. The study will provide planning and engineering necessary to extend the existing Federal Channel into Upper Newport Bay, and to remove sediment from the Upper Bay to enhance and protect wetland areas, salt marsh and navigational channels. Funding to initiate the study was approved in the 1994 Federal budget. This request is for \$250,000 needed to continue the study. The County of Orange and the City of Newport Beach are the local sponsors providing 50/50 matching funds for the study.

3. Cooperative Federal Beach Erosion Control Project Surfside/Sunset Beach to Newport Beach (\$6,100,000)

These funds are the Federal share of the funding necessary to continue beach nourishment. This project constructed the West Newport Beach Groin Field and beach fill during the 1970's and has continued to dredge sand onto a feeder beach at Surfside/Sunset Beach. The State of California, County of Orange and Cities of Newport Beach, Huntington Beach and Seal Beach are local sponsors. The cooperative project provides for 67% Federal and 33% Local matching funds.

Thank you,



John Wolter
Cooperative Projects Engineer

PREPARED STATEMENT OF AUDREY Z. TENNIS, CHAIR, CALIFORNIA WATER COMMISSION

The California Water Commission is an official agency of the State of California. It is composed of nine representative citizens from throughout the State. The Commission is charged by statute with representing the State and local interests before your Committee. The Commission is coordinating the filing of the statements of a number of State and local agencies. On behalf of the California Water Commission, I would like to express our sincere appreciation of the support this Committee has given California water, flood control and fisheries projects over the years. I am privileged to submit the official recommendations of the State of California for Fiscal Year 1996 appropriations.

I would first like to make a few general comments:

On January 17 of this year, President Clinton flew into California to see firsthand some of the flood damage and pledged whatever help he could offer through federal programs. Less than three weeks later, a press release came from his administration effectively eliminating the U.S. Army Corps of Engineers from flood control activities and support in California.

We in the State of California have had a long relationship with the Corps of Engineers, starting back in 1888 when Congress authorized the Secretary of War to detail three engineering officers to investigate hydraulic mining and the flooding caused by the mining debris. In 1893, Congress passed the Caminetti Act creating the California Debris Commission. Later, in 1917 Congress adopted the Sacramento Valley Flood Control Project as recommended by the California Debris Commission. We have been working with the Corps in California for over 100 years.

According to the Corps' press release dated February 6, 1995:

"Nationally significant missions of the Civil Works program will continue to include commercial navigation, interstate flood control, and environmental restoration. Nationally significant flood control projects will decrease damage which has been caused by waters which mainly originate from out of state. They also provide significant contributions to the national economy, in fact they must provide \$2 benefit to every \$1 invested. Because of the tight Federal budget dollar, the Federal share of these projects will be reduced to 25% of the cost, while the non-Federal share will be 75%."

This definition of "nationally significant" as it pertains to flood waters originating out of state is distressing. If the Sacramento River flowed into the Potomac River here in Washington, D.C., its headwater would be from three to six states away depending on which direction you would want to consider, but because the Sacramento River is all within California, it would not be considered of "national significance" under the Corps' new policy.

The same criterion would also eliminate consideration of potentially worthwhile Corps flood control projects in other states and thus can be characterized as discriminatory there as well.

The second criterion, a demonstrable benefit to cost ratio (B/C) in excess of 2 to 1, could eliminate many worthwhile programs throughout the United States, which are currently under way at some stage of reconnaissance -- feasibility -- P.E.D -- construction.

The truly frightening aspect of the Corps B/C process is that it is based only on economic loss, and does not incorporate a value for human life. Thus, preventing the loss of over a hundred lives in a major metropolitan area like Sacramento is apparently not of "national significance" since it would be considered only an "intangible benefit".

Perhaps most unrealistic, from a national perspective, is the third criterion under which the Federal cost share would be limited to 25% of the total cost. Why would local agencies and their citizen constituents subject themselves to years of delay in the Federal process in the hope of getting 25% of their costs paid? Experience shows that the 25% would be consumed in inflation, Federal overhead costs and project restraints.

This proposed policy would have an immediate and devastating effect on public safety and property damage in California. To give you a few examples:

- **The American River Watershed Flood Control Project.** This study has been cost-shared over the past several years with the Corps to the tune of over 5 million non-Federal dollars. Over this period of time many contracts, agreements, pledges and partnership meetings have been conducted between the Corps and the non-Federal cost-sharing agencies. Now only months away from Project Authorization, with 400,000 people and \$38 billion in homes and businesses at risk from flooding, the Administration says, "Corps get out, this is not of 'national significance'."
- **Arroyo Pasajero Flood Control Project.** This area, as many of you know, made the news when 7 people lost their lives as a 120-foot section of Interstate 5 collapsed when floodflows raced down the arroyo on March 10, 1995. The flood control project which very well could have averted such a disaster is funded in the President's Budget; however, if the new Corps policy goes into effect, it would not be funded beyond the Feasibility stage. Perhaps with 200 miles of an Interstate Highway out of service and the Lemoore Naval Air Station subjected to flooding, the definition of "national significance" might be revised.
- **Kaweah River, Terminus Reservoir Enlargement.** A Feasibility Cost-Sharing Agreement was signed with the Corps of Engineers in 1988 by the Kaweah Delta Water Conservation District. KDWCD represents the Counties of Tulare and Kings and the City of Visalia. This project is vital for flood control, as well as water conservation. This project has received tremendous local

support, which has contributed over \$1.4 million toward the study costs. This project was zeroed out in the President's FY96 Budget, because of the proposed policy.

- **Caliente Creek Feasibility Study.** In 1985, Kern County Water Agency was one of the first local agencies in the Nation to sign a Feasibility Cost-Sharing Agreement for studies on Caliente Creek flood problems. Since then, they have expended about \$1.2 million toward the feasibility study for flood control for the City of Arvin and the town of Lamont. A loss of Federal funds could set the project back many years while still being a risk from the present flood potential.

There are many other projects throughout California and the Nation where similar stories of local agencies being lead to the alter, only to be left standing.

The Corps of Engineers has over the years built a professional organization that has expertise and experience in flood control planning, design and construction. This policy would over a few short years, destroy what has taken decades to build.

It is well understood that the Administration and this Congress face tremendous obstacles in their efforts to reduce federal spending and move toward a balanced budget. While broad reductions in agencies and programs are obviously forthcoming, the Corps proposal is flawed. We are urging Congress to review all aspects of the Corps' budget and then prioritize projects based on fair criteria that consider the legitimate needs of all federal taxpayers.

The Commission would like you to know that it supports projects as shown on the attached document entitled, *California Water Commission - Final Recommendations for Fiscal Year 1996 Federal Appropriations for California Water, Fishery and Flood Control Projects, March 3, 1995*. That document contains recommendations adopted by the Commission at its meeting on March 3, 1995.

RECOMMENDATIONS FOR ADDITIONAL FUNDS. The Commission recommends additional funds be appropriated for several projects of the U.S. Army Corps of Engineers and U.S. Bureau of Reclamation and U.S. Fish and Wildlife Service, which are summarized in the following table. Brief comments on the need for additional funds follow the table.

U.S. ARMY CORPS OF ENGINEERS

CWC No.	Project and County	President's Budget FY 1996	CWC Final Recommendation FY 1996	Page No.
General Investigations - Surveys				
101	Tehama-Hamilton City Flood Control Study (Tehama, Glenn)	--	-- ¹	6
112	Sacramento River and Tributaries - Ecosystem Management Study	0	800,000	6
120	Stockton Metropolitan Area Study	--	800,000 ²	6
125	Reservoir Flood Release Coordination - San Joaquin River	--	75,000	7
134	San Joaquin River, Firebaugh and Mendota (Fresno)	0	150,000	7
135	San Joaquin Rvr., Arroyo Pasajero (Fresno) (Also see CWC 660, USBR)	700,000	700,000	8
139	San Joaquin River, Tule River Basin	0	200,000	8
171	Lower Mission Creek (Santa Barbara)	81,000	300,000	9
186	Mission Zanja Creek (San Bernardino)	0	300,000	9
187	Norco Bluffs, Santa Ana River (Riverside)	0	375,000	9
Preconstruction Engineering and Design				
201	American River Watershed	3,000,000	3,000,000	9
238	Kaweah River (Tulare) (Also see CWC 138)	0	500,000	9

¹ CWC supports Corps' recommendation that this project is to be funded under "Continuing Authorities" Program (Section 205).

² Stockton Metropolitan Area Study is proposed to include the Farmington Dam investigation.

CWC No.	Project and County	President's Budget FY 1996	CWC Final Recommendation FY 1996	Page No.
Construction - General				
301	Upper Sacramento River - Golden State Island (1135)	0	500,000 ¹	10
302	Sacramento River Restoration (Glenn) (Also see CWC 622, USBR)	0	300,000	10
305	Mid-Valley Area Levee Reconstruction	0	500,000	10
311	San Joaquin River, China Island Habitat Restoration (1135)	--	500,000 ¹	10

¹ To be funded under "Project Modifications for Improvement of the Environment" Program (Section 1135)

U.S BUREAU OF RECLAMATION

CWC No.	Project and County		President's Budget FY 1996	CWC Final Recommendation FY 1996	Page No.
Construction Projects (Mid-Pacific Region)					
610	Shasta Division				
611	Temperature Control Device Shasta Dam	Federal Restoration NonFed Total	549,000 11,281,000 0 11,830,000	549,000 11,281,000 0 11,830,000	11
612	Coleman National Fish Hatchery Modification		0	Support ¹	11
620	Sacramento River Division				
621	Colusa Basin Drain		--	750,000	11
622	Hamilton City Pumping Plant Fish Facility (Glenn) (Also see CWC 302, Corps)		0	3,000,000	12
623	Winter-Run Chinook Salmon Captive Broodstock Program		0	1,100,000	12
624	Red Bluff Diversion Dam Demonstration Research Facility Evaluation		0	1,300,000	13
625	Red Bluff Diversion Dam Fish Passage Program		0	1,000,000	13
660	San Luis Unit - CVP (Includes funds for Arroyo Pasajero flood control project) (Also see CWC 135, Corps)		800,000	800,000	13
670	Miscellaneous Project Programs (Mid-Pacific Region)				
674	Fish Screening Criteria Study		--	500,000	14
687	Unscreened Diversions		6,000,000	6,000,000	14
688	Reclamation District 108 (Unscreened Diversions)		0	650,000	14
689	Reclamation District 1004 (Unscreened Diversions)		0	215,000	14
Loan Projects (Westwide)					
800	Small Reclamation Projects Administration		425,000	600,000	15
Loan Projects (Lower Colorado Region)					
1203	San Sevaire Creek Water Project (San Bernardino, Riverside)		0	250,000	15
PL 102-575 (Mid Pacific Region)					
901	San Francisco Area Water Reclamation Study		700,000	1,500,000	16
903	San Jose Area Water Reclamation and Reuse Program		1,750,000	9,000,000	16
PL 102-575 (Lower Colorado Region)					
1302	Orange County Regional Water Reclamation Project - Phase 1		--	600,000	16
1304	San Diego Area Reclamation		2,340,000	9,000,000	16
1306	Brackish Water Reclamation Demonstration Facility (Ventura)		--	500,000	16

¹ CWC continues to vigorously support completion of the Station Development Plan, but recommends no additional funding in FY96 in order that funds can be used for the Shasta Temperature Control Device.

U.S. ARMY CORPS OF ENGINEERS

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
111 New	Tehama-Hamilton City Flood Control Study (Tehama, Glenn)						- ¹

Glenn County officials reported that on January 10, 1995 for the third time in the past 12 years, residents of Hamilton City had to be evacuated because of the threat of flooding in the town as a result of impending levee failure.

The residents of Hamilton City and nearby farm operators feel that they can no longer rely on this levee in its current conditional and have asked the Glenn County Public Works Department to act as a public sponsor to begin the process of bringing the levee up to federal standards for maintenance. Both the Hamilton City Community Service District and representatives of farms in the area have indicated their willingness to participate in the construction and O&M of this levee through the formation of a local assessment district or levee maintenance district.

Flooding of the town of Tehama occurred in 1986 and some homes were raised above the flood level; however, in January of 1995, other homes were flooded. The city has requested the Corps to restudy this area for flood control improvements.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
112 New	Sacramento River and Tributaries - Ecosystem Management Study	Federal 2,000,000 NonFed 0 Total 2,000,000	0	0	800,000	0	800,000

The Sacramento River Flood Control Project, authorized by Congress in 1917, is located on the Sacramento River and tributaries in northern California. The project provides flood protection to most of the metropolitan areas located in the greater Sacramento Valley, including the State capital in Sacramento. Over the years society's values, uses, restrictions, and demands on the flood control project and rivers encompassed by the Project have changed significantly. Today, society is demanding not only protection from flooding, but also recreational opportunities, enhancement of the environment and ecosystem, and economic growth of local communities. To meet these and other needs along the river, individual and separate activities are using the same base assumption, which is to develop their specific project or program around the flood control project, as it presently exists. This base assumption with a fact that some activities are competing has placed a number of activities along the river in conflict.

This creates a need to develop and implement a comprehensive, multi-objective floodway corridor management plan that considers flood control project modification or reconfiguration and would assist in coordinating all the activities related to flood control. This plan would help assure continued viability of the Sacramento River Flood Control Project and the river system for future generations. This plan would be studied and developed while existing public safety activities continue. Once the plan is ready for implementation, a transition process will occur to implement the comprehensive plan and terminate or merge existing program activities.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
120 New	Stockton Metropolitan Area Study (Includes Farmington) (San Joaquin)						800,000

The Federal Emergency Management Agency has recently completed a study of the Stockton Metropolitan area. The study concludes that much of the Stockton Metropolitan area does not have protection from a 100-year flood. The affected area includes all of downtown Stockton and the most heavily populated areas of the community. FEMA has released preliminary Flood Insurance Rate Maps that show flooding of the community from Mormon Slough, the Stockton Diverting Canal, the Calaveras River, Lower Mosher Slough, the Paddy Creek System, Bear Creek, and the Potter Creek Tributaries. The FEMA study concluded that levees along these channels do not have adequate freeboard.

San Joaquin County Flood Control and Conservation District and the City of Stockton have entered into a joint agreement to address the flooding issue. The City and County Public Works staff has begun identifying improvements necessary to provide the community with 100-year flood protection. A very rough estimate of a plan to provide this protection is expected to cost approximately \$22 million. Most of the identified work involves increasing levee and bridge crossing heights to correct freeboard deficiencies.

Because of the magnitude of the potential loss of life and damage to property within the community, a new study called the "Stockton Metropolitan Area Study" is proposed. The proposed study would be a General Investigation Survey (Reconnaissance Report) and would be 100 percent federally funded. The report would take approximately 18 months to complete. Subsequent reports, and the project construction phases would be cost shared with a non-Federal sponsor.

The scope of this study would include Farmington Dam, which was previously requested as a separate study. Stockton East Water District is seeking appropriations for the Corps to perform storage tests and a study to determine feasibility for enlargement of the dam for conservation purposes. A June 1981 Corps report recommended test storage within the present flood control reservoir, and discussed enlargement from 52,000 AF to 160,000 AF.

¹ CWC supports Corps' recommendation this project is to be funded under "Continuing Authorities" Program (Section 205)

² Reconnaissance Study is 100 percent federally funded. Non-Federal cost sharing will begin at Feasibility Study Level.

CWC No.	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
124	Reservoir Flood Release Coordination - San Joaquin River						75,000

The U.S. Army Corps of Engineers has used some discretion managing releases during major floods. However, there is no established commitment or methodology for analyzing and determining the feasibility of such coordination under the wide range of possible circumstances. Furthermore, such coordination could reduce seepage damage, flooding of recreational facilities and tailer parks, and other impacts of lesser floods. Feasibility of coordinated operation is also greater during these lesser floods.

The project is designed to develop criteria and methodology for coordinating releases among dams on the San Joaquin River system so that releases to evacuate or manage the use of dedicated flood space are optimized and balanced in achieving several objectives:

- Maintain design level of flood protection in each tributary.
- During high-flow situations, manage arrival time and magnitude of tributary flows into the mainstem to minimize downstream peak flows and flood damage where tributary flows merge along the mainstem.
- In preparation for high-flow situations, releases are often made to evacuate or maintain designated flood space at times when the need or potential for such a release can be recognized at least a few days in advance. When this is the case, agencies with salt management problems should be given advance notice so that salts stored in shallow groundwater or ponds can be discharged to the river which adequate dilution water is available. Drainage discharges should not be artificially augmented when floodflows are above the warning stage. The ability to take advantage of these opportunities should be enhanced by improved mechanisms for storage, extraction and rapid discharge of drainage water to the river.

CWC No.	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
134	San Joaquin River Basin, Firebaugh & Mendota (Fresno)	Federal 875,000 NonFed 525,000 Total 1,400,000	98,000	252,000	232,000	0	150,000

The study area is located in northwestern Fresno County, California approximately 35 miles west of the City of Fresno. The City of Firebaugh is located on the west bank of the San Joaquin River while the City of Mendota is approximately ten miles southeast of Firebaugh. Current populations of Firebaugh and Mendota are 5,400 and 7,700, respectively. Flooding in the study area is primarily due to overflows from the Panoche Creek, Silver Creek and from inadequate flow capacity of the San Joaquin River due to sediment build-up over time. The California State Reclamation Board, the local sponsor, expressed support for the study in September 1994. The Feasibility Cost Sharing Agreement is scheduled to be signed in September 1995.

CWC No.	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
135	San Joaquin River Basin, Arroyo Pasajero (Fresno) (Also see CWC 660)	Federal 3,195,000 NonFed 2,330,000 Total 5,525,000	1,170,000	850,000	977,000	700,000	700,000

Flooding, sediment deposition, and asbestos contamination problems affecting cross drainage facilities of the San Luis Canal at Arroyo Pasajero need to be resolved. The Arroyo Pasajero, located in Fresno County, is a dry wash which drains the four streams of the Coalinga stream group. Flood waters from the stream group are ponded behind the San Luis Canal because the original design provided for minimal cross drainage with ponding and subsequent release of flood water into the San Luis Canal.

Larger volumes of flood waters and sediments than originally anticipated have proven the ponding area adjacent to the canal to be inadequate. Large concentrations of asbestos have been discovered within the flood waters and sediments of the ponding area originating from naturally erosive deposits in the upper watershed and from abandoned asbestos mines which are currently listed on the Environmental Protection Agency's Superfund List.

The Corps of Engineers has completed a reconnaissance level study and has determined that Federal participation for flood control is feasible. The Department and the Corps commenced the joint feasibility study in January 1994.

DWR is involved in an ongoing program to protect the canal and surrounding residents from floodflows at the Arroyo Pasajero. In the near term, this program involves implementing the interim solution described in DWRs Draft EIR which incorporates the protection of nearby communities from flood damages and maximizes Aqueduct protection while utilizing the existing canal facilities. Secondly, DWR and the Corps are beginning a four-year basinwide Feasibility Study in 1994 which will identify a long-term flood protection plan for the Arroyo. The Corps, DWR and USBR will all participate in the cost of the study and the selected solution to Arroyo Pasajero flooding problems.

On March 10, 1995 a section of Interstate 5 collapsed when floodflows raced down the Arroyo. Seven people lost their lives and there was significant property damage.

CWC No.	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
139	San Joaquin River Basin, Tule River Basin	Federal 1,444,000 NonFed 1,129,000 Total 2,573,000	819,000	25,000	--	0	200,000

The Tule River Association reports that although further work on the Success Reservoir Enlargement Feasibility Study was placed on hold in 1992 for updating the seismic studies of Success Dam, after a meeting with General Williams, Chief USACE and members of Congress on August 16, 1994 and a subsequent meeting with District and SPD Corps Staff on October 17, 1994, copy of Corps communications attached as Exhibit "B", the Corps

agreed to proceed in calendar year 1995 and FY 1996 under an amendment of the 1988 FCSA with updating and completion of the various tasks of the feasibility study.

A meeting between the local sponsor and the District Corps staff regarding an amendment of the FCSA was conducted on January 12 and 13, 1995. During that meeting the Corps District staff agreed to obtain clarification of the need for the extensive rewrite of the 1992 Interim Report and particularly the need for risk-based analysis, reformulation of alternative plans of enlargement for selection of a NED plan, additional detailed economic studies, MCACES cost estimate and determination of the environmental impacts and mitigation of only the area of reservoir enlargement instead of the entire Tule River downstream service area.

It is anticipated that the amended FCSA cost will be reduced to approximately \$500,000 and although the Corps has agreed to proceed in FY 95 using other funds, the 1996 budget needs to provide \$200,000 for the continuation of the Success Reservoir Enlargement Feasibility Study.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
171	Lower Mission Creek (Santa Barbara)	Federal 2,799,000 NonFed 750,000 Total 3,549,000	1,549,000	419,000	--	81,000	300,000

Lower Mission Creek is located in the City of Santa Barbara. The authorized plan consists of approximately 1.2 miles of rectangular concrete channel improvements along the lower most reach of the creek. The project is designed to prevent 100-year flood damages. The \$300,000 is needed to continue the study to determine the most efficient and effective alternative.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
186	Mission Zanja Creek (San Bernardino)	Federal 1,370,000 NonFed 870,000 Total 2,240,000	500,000	0	300,000	0	300,000

The study area is located in San Bernardino County approximately 55 miles east of Los Angeles. The 10-mile Zanja Creek drains a total of 26 square miles from the San Bernardino Mountains to the confluence of the Santa Ana River. Flooding in 1965, 1976 and 1980 caused over \$4 million in damages. The 100-year flood potential to downtown Redlands is estimated at about \$8 million.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
187	Norco Bluffs, Santa Ana River (Riverside)	Federal 1,430,000 NonFed 925,000 Total 2,355,000	855,000	200,000	400,000	0	375,000

The study area is located approximately 40 miles southeast of Los Angeles in the City of Norco along the south bank of the Santa Ana River. Flood induced migration of the main channel of the Santa Ana River to the base of the bluffs has resulted in undercutting and subsequent bank destabilization which threatens residential development along the edge of the bluffs. The County of Riverside requested the Corps to proceed directly to a feasibility study, which is being cost-shared on a 50:50 basis with the County and the Corps. In FY94, the Congress appropriated \$150,000 to start the feasibility report. There is an FY95 appropriation of \$200,000.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
201	American River Watershed	Federal 19,200,000 NonFed 0 ^a Total 19,200,000	8,962,000	2,099,000	2,000,000	3,000,000	3,000,000

SAFCA along with the State Reclamation Board are acting as joint non-Federal sponsors for the American River Watershed Investigation. The State and SAFCA cost-shared in the Feasibility Report produced in 1992 by the Corps which recommended the 200-year dry Auburn Dam Project, which was not approved by Congress. Since 1992, the Federal government has fully funded the Corps efforts for the continuing studies on the ARW, as if the project was in design. SAFCA has provided in-kind services predominantly through outside consultants to supplement the Corps efforts. Our goal is to select a locally preferred plan and seek Congressional authorization in 1996.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
218	Kaweah River (Tulare) (Also see CWC 138)	Federal 3,900,000 NonFed 0 ^a Total 3,900,000	0	0	500,000	0	500,000

The project area is located within the Tulare Lake Basin, in the southeastern portion of the San Joaquin Valley, between the cities of Fresno and Bakersfield. The cost-shared feasibility study is scheduled for completion in February 1996. The potential project, estimated to cost \$40.1 million with an estimated Federal cost of \$29.5 million and an estimated non-Federal cost of \$10.6 million (October 1994 price level), includes enlarging Lake Kaweah by 43,000 acre feet. The average annual benefits amount to \$3,910,000 (\$3,346,000 for flood control, \$321,000 for irrigation water supply and \$243,000 for employment benefits). The benefit-cost ratio is 1.3 to 1 at 8 percent based upon the latest economic analysis dated September 1992. The project is not yet authorized for construction. The Kaweah Delta Water Conservation District, the local sponsor, is aware of project cost-sharing requirements.

^a Reconnaissance Study is 100 percent federally funded. Non-Federal cost sharing will begin at Feasibility Study Level.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
301	Upper Sacramento River - Golden State Island (1135)	Federal 3,000,000 NonFed 1,000,000 Total 4,000,000		500,000	500,000	0	500,000

On May 12, 1992 The Reclamation Board of the State of California requested that the U.S. Army Corps of Engineers conduct a reconnaissance study of the upper Sacramento River system, including major tributaries, from Verona to Red Bluff. This study, funded in 1993 and now in draft form, is recommending habitat restoration at five river sites. Based upon the contents of the site-specific, single-purpose reconnaissance study, the Reclamation Board recommends consideration of an environmental restoration project at the Golden State Island site in accordance with Sections 1135 of the Water Resources Development Act of 1986, which provides the Corps the authority to do restoration projects. This would allow the Corps/State to demonstrate possible future actions on the Sacramento River Flood Control Project that would provide broad scale benefits when properly integrated with flood control measures.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
302	Sacramento River Restoration at Glenn-Colusa Irrigation District (Glenn) (Also see CWC 622)	Federal 10,650,000 NonFed 3,550,000 Total 14,200,000	2,193,000	400,000	400,000	0	300,000

The Reclamation Board, Department of Fish and Game and the Glenn-Colusa Irrigation District are proceeding with cost-shared environmental documentation for the restoration of the Sacramento River hydraulic gradient and restoration or replacement of the fish screens. Congress provided funds and directed the Corps to restore a portion of the river to its original configuration so that water supply and fish protection facilities can continue to operate.

An FY95 appropriation of \$400,000 has allowed the Corps to participate in physical hydraulic modeling, to continue post-design activities following completion of the design report, to accomplish necessary environmental documentation of the final design, and to prepare plans and specifications for construction.

It is our understanding that the Department of Fish and Game will become the State lead agency as soon as the Draft Feasibility Study EIR/EIS is complete in the spring of 1995.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
305	Mid-Valley Area New Levee Reconstruction	Federal 17,000,000 NonFed 5,600,000 Total 22,600,000	1,352,000	870,000	--	0	500,000

The project is located within the boundaries of the Sacramento River Flood Control System in Sutter and Yolo Counties in north-central California. The area includes the Sacramento River, Knights Landing Ridge Cut, and Sutter Bypass and the communities of Knights Landing and Robbins. An evaluation of about 240 miles of the Sacramento River Flood Control Project levees in the Mid-Valley area identified about 20 miles of levees that are structurally deficient. The project includes reconstructing about 10 miles of these levees by installing landside berms with toe drains, relocation of ditches, embankment modifications, slurry cut-off walls, the restoration of levee height and developing land for fish and wildlife mitigation. The California State Reclamation Board will act as the local sponsor for reconstruction work. A Project Cooperation Agreement will be executed prior to initiation of construction currently scheduled for January 1996.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
311	San Joaquin River New China Island Habitat Restoration	Federal 4,500,000 NonFed 1,500,000 Total 6,000,000		0	500,000	--	500,000

This pilot project, to be carried out on California Department of Fish and Game lands along the San Joaquin River, would combine construction of facilities to restore wetland refuge habitat with features allowing the diversion of floodwater to the refuge area during peak flow periods. The Corps would design and construct environmental restoration and flood control features for approximately 4,730 acres of land currently owned and planned for refuge development by the California Department of Fish and Game, referred to as the "China Island Unit."

U.S. BUREAU OF RECLAMATION

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
611	Temperature Control Device - Shasta Dam	Federal 72,963,000 Restoration 7,037,000 NonFed 0 Total 80,000,000	6,229,166 1,312,777 7,539,243	18,000,000 7,037,000	5,000,000 7,037,000	549,000 11,281,000	549,000 11,281,000

A structural water temperature control device will be installed at Shasta Dam to provide better control of river temperatures to assist in recovery actions for anadromous salmonids in the Upper Sacramento River. A construction contract was awarded in November 1994. Construction activities will continue in FY 1995 with an anticipated completion date of October 1996. Summarized below is information for the Shasta Temperature Control Device:

Design and Construction	
Call for Bids	March 1994
Open Bids/Negotiate Contract	May-September 1994
Award Contract	October 1994
Complete Construction	October 1996

Projected Fiscal Needs	
Pre FY 1994	\$ 6,007,300
FY 1994	1,500,000
FY 1995	30,625,000
FY 1996	31,647,700
FY 1997	10,220,000
Total Estimated	\$ 80,000,000

CVPIA specifies cost sharing is 37.5% CVP reimbursable, 37.5% Federal nonreimbursable and 25% State.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
612	Coleman National Fish Hatchery Modification	Federal 29,358,000 Restoration 5,335,000 Total 34,693,000	0	0	2,735,000	0	Support ^a

Coleman National Fish Hatchery supplements natural production of anadromous fish in the Upper Sacramento River basin. The Fish and Wildlife Service is currently implementing a plan to rehabilitate and expand the facility so that survival, smolt quality and release size are significantly improved. An additional objective is to provide full treatment of waters entering the hatchery system thus removing or significantly lowering potential for transmission of disease organisms to hatchery fish. This is expected to permit the removal of barriers to migratory salmon in Battle Creek and provide access to upstream spawning gravels.

Construction will continue to be accomplished in phases over several years with actual construction taking place in the spring and summer of each year in order to minimize impacts to the fall and winter spawning and rearing periods. In FY94 rehabilitation of 50-year old rearing ponds, a new primary water line for the ponds, and Phase I water treatment facilities were completed. In FY95 the Phase I water treatment facilities (ozonation) to provide up to 10,000 gallons per minute of treated water will be completed.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
621	Colusa Basin Drain			75,000	--	--	750,000

The 650,000 acre Colusa Basin Drainage District serves a large watershed, comprised of 21 smaller watersheds. It not only is a rich agricultural area, but a rich wildlife area as well, including three national wildlife refuges. A cooperative, integrated approach to watershed management will allow water-related projects to meet multiple needs within the watershed. The District has just completed ranking the 21 watersheds within the Basin, to define the areas where it is most feasible to achieve the District's goals to:

- protect agricultural production
- capture surface or stormwater for conservation, conjunctive use and increased water supplies
- provide flood and drainage water protection for urban and agricultural interests
- assist in groundwater recharge efforts to alleviate overdraft and land subsidence
- improve and enhance opportunities for wetland and riparian habitats.

The District has initially selected three watersheds where projects will be developed to serve as a demonstration for integrated resources management. The District would use an FY 96 appropriation to assist it with costs associated with pre-project development.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
622	Hamilton City Pumping Plant Fish Facility (Glenn) (Also see CWC 302, Corps)	Federal 37,315,000 Restoration 0 Non Fed 0 Total 37,315,000	1,237,270	1,425,000	1,500,000	0	3,000,000

The Reclamation Board, Department of Fish and Game and the Glenn-Colusa Irrigation District are proceeding with cost-shared environmental documentation for the restoration of the Sacramento River hydraulic gradient and restoration or replacement of the fish screens. The Congress has provided funds and directed the Corps of Engineers to restore a portion of the river to its original configuration so that water supply and fish protection facilities can continue to operate.

An FY95 appropriation of \$400,000 has allowed the Corps to participate in physical hydraulic modeling, to continue post-design activities following completion of the design report, to accomplish necessary environmental documentation of the final design, and to prepare plans and specifications for construction.

Funding in FY96 will allow USBR to continue design of this important facility.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
623	Winter-Run Chinook Salmon Captive Broodstock Program	USBR 700,000 USFWS NOAA Total NonFed Total 12,616,257	1,164	400,000	250,000 250,000 171,556 1,610,000 2,281,556	0	1,100,000

The Sacramento River winter-run Chinook salmon has been listed as threatened under the Federal Endangered Species Act by the National Marine Fisheries Service and as endangered under California law. This listing has already impacted several important sectors of California's economy. Actions already taken to protect winter-run salmon and their habitat include curtailment of salmon fishing in coastal California waters, restrictions on diversions from the Sacramento-San Joaquin Delta for the State Water Project and the Federal Central Valley Project, reduction of water diversion at the Glenn-Colusa Irrigation District, halting the release of striped bass into the Sacramento Delta, bypassing the powerhouse at Shasta Dam to provide cool water in the upper Sacramento River and holding up the permit process for the dredging of the ports of San Francisco and Oakland.

The goal of the captive broodstock program is to rear winter-run Chinook salmon under controlled conditions until they become reproductively mature adults. Mature adults would then be used as hatchery broodstock for continued propagation of the race.

^a CWC continues to vigorously support completion of the Station Development Plan, but recommends no additional funding in FY96 in order that funds can be used for the Shasta Temperature Control Device

A genetic management element is included in the project. This is necessary to prevent inbreeding of the fish. A blue ribbon subcommittee of recognized scientists has been appointed by the captive broodstock committee to oversee the genetic program.

In FY 1994, Congresswoman Nancy Pelosi took the lead to secure appropriations for USF&WS and National Marine Fisheries Service and Congressman Vic Fazio requested an add-on to USBR's Budget. H.R. 2457 (Pelosi) passed both houses of Congress and was recently signed by the President. The Act authorizes \$1 million for appropriations for each of fiscal years, 1994 through 1998, subject to at least 20 percent of the amounts necessary to conduct the Program being provided by non-Federal sources.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
624	RHDD Demonstration Research Facility Evaluation	Federal	5,830,000	383,459	406,000	0	1,300,000
		Restoration	920,000	0	920,000		
		NonFed		0			
	Total	6,750,000	383,459	1,320,000			
625	RHDD Fish Passage Program	Federal	5,163,000	1,299,988	495,000	0	1,000,000
		Restoration	500,000	0	500,000		
		NonFed		0			
	Total	5,663,000	1,299,988	995,000			

Red Bluff Diversion Dam has been identified as one cause of a continued decline of salmon and steelhead in the Sacramento River to levels roughly 50 percent of the 1953-60 average. The continued decline of the winter-run chinook salmon has prompted its listing as an endangered species.

The Action Program began in 1983 and is a coordinated effort between the Bureau of Reclamation and State and Federal resource agencies.

Reclamation has completed an Appraisal Study. The Study recommends further consideration be given to the following alternatives:

- A pumping plant capable of delivering the full yearly demands to the Tehama-Colusa and Corning Canals.
- A pumping plant capable of supplying the demands of the Tehama-Colusa and Corning Canals for 10 months.
- A combination of gates of the dam open during the winter months and a new left bank and middle fish ladder and a modified right bank ladder.
- A combination of gates of the dam open during the winter months and a new left bank and middle fish ladder, and a modified right bank ladder.

The Study considered the following: (1) Benefits to the fishery as a result of improved fish passage facilities and (2) Economic viability of the various alternatives.

Efforts to determine social impacts, public acceptability of alternatives, and the financial analyses are ongoing.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
660	San Luis Unit - CVP (Includes funds for Arroyo Pasajero flood control project) (Also see CWC 135 - Corps)	Fed	1,524,956,000	563,833,261	647,000	676,000	800,000
		NonFed	232,772,114	209,334,250			275,000
		Total	1,757,728,114	773,167,511			1,075,000

Flooding, sediment deposition, and asbestos contamination problems affecting cross drainage facilities of the San Luis Canal at Arroyo Pasajero need to be resolved. The Arroyo Pasajero, located in Fresno County, is a dry wash which drains the four streams of the Coalinga stream group. Flood waters from the stream group are ponded behind the San Luis Canal because the original design provided for minimal cross drainage with ponding and subsequent release of flood water into the San Luis Canal. Larger volumes of flood waters and sediments than originally anticipated have proven the ponding area adjacent to the canal to be inadequate. Large concentrations of asbestos have been discovered within the flood waters and sediments of the ponding area originating from naturally erosive deposits in the upper watershed and from abandoned asbestos mines which are currently listed on the Environmental Protection Agency's Superfund List.

The Corps of Engineers has completed a reconnaissance level study and has determined that Federal participation for flood control is feasible. The Department and the Corps commenced the joint feasibility study in January 1994.

DWR is involved in an ongoing program to protect the canal and surrounding residents from floodflows at the Arroyo Pasajero. In the near term, this program involves implementing the interim solution described in DWR's Draft EIR which incorporates the protection of nearby communities from flood damages and maximizes Aqueduct protection while utilizing the existing canal facilities. Secondly, DWR and the Corps began a four-year basinwide Feasibility Study in 1994 which will identify a long-term flood protection plan for the Arroyo. The Corps, DWR and USBR will all participate in the cost of the study and the selected solution to Arroyo Pasajero flooding problems.

On March 10, 1995 a section of Interstate 5 collapsed when floodflows raced down the Arroyo. Seven people lost their lives and there were significant property damages.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
674	Fish Screening Criteria Study - New						500,000

Section 3406 (b)(21) of the Central Valley Improvement Act directs USBR and USFWS to assist the State of California in developing a fish screening program. It has been determined that fish screening criteria studies conducted in the 1970s and 1980s for tidally influenced areas do not adequately address the problems in riverine conditions. This study proposes to focus on factors influencing the swimming ability of juvenile fish, including the type and size of the species, lighting and temperature conditions, type, location and size of diversion and they

hydraulic conditions of the water body. The information gathered would be useful for many water users to effectively screen more of their diversions.

Federal and State resources agencies involved in fish screening projects and issues, along with several water user representatives, would join together to coordinate the study.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
687	Unscreened Diversions	Federal	27,119,000	0	4,000,000	4,000,000	6,000,000
		Restoration	616,951	616,951			
		NonFed		0			
		Total	28,119,000	616,951			6,000,000
688	Reclamation District 108 (Unscreened Diversions)	Federal	450,000	0	450,000	0	650,000
		NonFed		0		0	
		Total	450,000	0			
689	Reclamation District 1004 (Unscreened Diversions)	Federal	215,000	0	215,000	0	215,000
		NonFed		0		0	
		Total	215,000	0			

Reclamation District 108. The installation and evaluation of alternative fish guidance systems is being conducted for Reclamation District 108 at Wilkins Slough, and is a demonstration project. The assessment will be used in consultations being conducted under Section 7 of the Endangered Species Act. This biological assessment will describe the historic and anticipated future operations of the Wilkins Slough diversion, the experimental fish guidance systems to be tested, and the monitoring program designed to evaluate the effectiveness of the fish guidance systems. The guidance systems to be tested area graded electrical barrier and an underwater sound system. The proposed actions are designed to be carried out when winter-run Chinook are not present, to determine if the sound and electrical barriers can be effective at guiding juvenile Chinook away from the Wilkins Slough diversion. This assessment will also describe the biology of winter-run Chinook salmon and the effects the proposed project may have on them.

Reclamation District 1004. The Biological Assessment has been prepared to describe the possible effects of the installation and testing of a fish guidance system at Reclamation District 1004's Princeton pumping station on winter-run Chinook salmon in the Sacramento River. RD 1004 is along the migratory pathway for winter-run Chinook salmon, which spawn in the Sacramento River, principally above Red Bluff, upstream of Princeton. The installation and evaluation of a fish guidance system is being conducted for RD 1004 at Princeton, and is a demonstration project being conducted under Section 7 of the ESA. This biological assessment will describe the historic and anticipated future operations of the Princeton diversion, the experimental fish guidance system to be tested, and the monitoring program designed to evaluate the effectiveness of the fish guidance system. The guidance system to be tested is an underwater sound system

USBR SMALL RECLAMATION PROJECT LOAN PROGRAM

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
Loan Projects (Westwide)							
800	Small Reclamation Projects Admin.	Federal	Continuing	600,000	600,000	425,000	600,000

The Commission continues to support an appropriation for this line item which would be adequate to carry out the administration of the USBR Small Reclamation Projects Loan Program. Toward this effort, the Commission voted to recommend an FY96 appropriation of \$600,000 for the Westwide administration of this program.

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
Loan Projects (Lower Colorado Region)							
1203	San Sevaine Creek Water Project (San Bernardino, Riverside)	Federal	51,976,594	0	0	500,000	0
		NonFed	30,871,816				
		Total	82,848,410				

The proposed project would provide environmental enhancements, water conservation and flood control facilities in the western portion of the San Bernardino Valley. A 98-acre area is being set aside to protect a sensitive plant community and wetlands and provide wildlife enhancement. A multi-purpose trails system is also proposed along most of the project. In addition, several water conservation basins will percolate an estimated 25,000 acre feet of storm water runoff per year into the Chino Groundwater Basin benefitting agricultural, municipal and industrial water users in the Valley. Presently, the Basin safe yield is in an over-draft condition, which is replenished by importing water from Northern California. This project would help reduce the need for purchasing imported water.

WATER RECYCLING PROGRAM

Title XVI of the Reclamation Projects Authorization and Adjustment Act of 1992, Public Law 102-575, provides authority for the Secretary of Interior through the Bureau of Reclamation to undertake a program to investigate and identify opportunities for reclamation and reuse of wastewater. Section 1611 of this title, which authorizes Reclamation to conduct a feasibility study for the potential of demonstration and permanent facilities to reclaim water.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
PL 102-575 (Mid Pacific Region)								
901	San Francisco Area Water Reclamation Study	Federal	3,690,000		790,000	790,000	700,000	1,500,000
		NonFed	3,690,000					
		Total	7,380,000					
903	San Jose Area Water Reclamation and Reuse Program	Federal	32,500,000	0	1,715,000	-	1,750,000	9,000,000
		NonFed	97,500,000					
		Total	130,000,000					
PL 102-575 (Lower Colorado Region)								
1302	Orange County Regional Water Reclamation Project - Phase I	Federal	42,600,000		0	250,000	-	600,000
		NonFed	127,800,000					
		Total	170,400,000					
1304	San Diego Area Reclamation (Includes San Diego, Escondido, Poway, Padre Dam Muni WD, Okay Water Dist. and San Diego County Water Authority)	Federal	172,590,000	0	2,500,000	Support	2,340,000	9,000,000
		NonFed	517,770,000					
		Total	690,360,000					
1306	Brackish Water Reclamation Demonstration							500,000
New	Facility (Venusa)							

CWC 901 - San Francisco Area Water Reclamation Study. The San Francisco Area Water Reclamation feasibility study explores the concept of exporting excess recycled water from the Bay Area - after maximum local usage - to regions that could beneficially reuse the water for such purposes as agricultural irrigation and salinity control. More than 15 Bay Area water and wastewater agencies are participating in this study, along with State and Federal agency representatives. Implementation of this project could potentially free up to 400,000 acre-feet of potable water for other uses, such as in-stream flows for fish and wildlife, or drought protection for municipalities.

It is anticipated that the feasibility study, which is an essential step in verifying the potential for significant environmental, economic, and social benefits from the project, will include (1) near and long-term water demand and supplies in the study area; (2) identification of all potential uses for reclaimed water; measures and technologies available for water reclamation, distribution, and reuse; (3) public health and environmental quality issues associated with use of reclaimed water; and (4) whether development of the water reclamation and reuse measures under study would reduce, postpone, or eliminate development of new or expanded water supplies, or reduce or eliminate the use of existing diversions from natural watercourses or withdrawals from aquifers.

CWC 903 - San Jose Area Water Reclamation and Reuse Program. The San Jose Area Water Reclamation and Reuse Program is a regional project sponsored by the Cities of San Jose and Santa Clara, neighboring municipalities and sanitation agencies, and the Santa Clara Valley Water District. The project will enable the San Jose/Santa Clara Water Pollution Control Plan to meet federally mandated water quality standards, and will reduce pressure on area surface and groundwater supplies by diverting up to 36,000 acre-feet per year of treated effluent from San Francisco Bay and recycling it for irrigation and industry in the drought-prone Santa Clara Valley.

Phase I of the project involves construction of 100 miles of pipe in a 30-square mile section of Silicon Valley. This area, which marks the intersection of the cities of San Jose, Santa Clara and Milpitas, has over 3,000 irrigable acres, including high-tech business parks, schools and a golf course. Phase I will deliver 9,000 acre-feet per year of recycled water at a cost of \$130 million, and is scheduled to begin operation in November 1997.

CWC 1302 Orange County Regional Water Reclamation Project - Phase I. The Orange County Regional Water Reclamation Project is being developed in three phases. Phase I is planned to produce 50,000 acre-feet per year of reclaimed water, primarily for groundwater replenishment, by the year 2000. Phases II and III will produce an additional 25,000 af per year in the years 2010 and 2020, thereby eventually producing a total of 100,000 af per year. The project is being planned to utilize a combination of microfiltration and reverse osmosis. One hundred percent of the secondary effluent will be treated by microfiltration membrane units. A portion of the microfiltered effluent will then be treated by reverse osmosis membrane units. The reverse osmosis product water will be blended with the remaining microfiltered water and pumped about 15 miles via a pipeline to the Orange County Water District's existing groundwater recharge basins for groundwater spreading. The activities associated with Phase I of the project which are expected to be conducted during Federal fiscal year 1996 include finalizing the environmental documentation, continuing the Santa Ana River Water Quality and Health Study and beginning preliminary design.

CWC 1304 - San Diego Area Reclamation. The local water agencies, led by the San Diego County Water Authority, have been developing a comprehensive water reclamation and reuse plan for the entire county. Among the components included in the projects are:

Escondido Water Reclamation Project. The City of Escondido is expanding their existing secondary treatment plant to tertiary, and constructing pumping and distribution facilities to annually deliver approximately 3,200 acre-feet of reclaimed water to customers for irrigation use. Reclamation has executed a grant for \$400,000 for preconstruction activities, which is being funded from General Investigations accounts because it includes research concerning the tolerance of avocados to the wastewater. The results of this study could have a major impact on the potential market for reclaimed water. The main project is estimated to cost about \$69 million and should be completed by 1998.

San Diego Water Reclamation Project. The City of San Diego has begun construction of its North City Treatment Plant, which includes both secondary and tertiary treatment components. Approximately 14,000 acre-feet of tertiary effluent will annually be distributed via pumping plans and pipelines for use as industrial process water and for landscape irrigation. The tertiary portion of the treatment plant, pumps and pipelines are estimate to cost about \$200 million and should be completed by 1997.

San Diego Water Repurification Project. The City of San Diego and the San Diego County Water Authority are jointly studying the feasibility of using state-of-the-art technology to purify reclaimed water to a level equivalent to existing imported water supplies. If approved by appropriate authorities, a water repurification facility would annually treat approximately 21,000 acre-feet tertiary effluent from the North City Treatment Plant, which would then be pumped over 20 miles to the San Vicente Reservoir for blending with imported raw water. This project is still in the feasibility stage, so an accurate estimate cannot be prepared.

CWC 1306 - Brackish Water Reclamation Demonstration Facility. To provide high quality water, the Port Hueneme Water Agency is implementing a Water Quality Improvement Program. This program involves demineralization of the imported groundwater which will be used conjunctively with imported State water. Local groundwater pumping along the coast would be eliminated and total groundwater extractions would be reduced.

The cornerstone of the program is a brackish water reclamation demonstration facility to provide 3.9 million gallons per day of water treated to the quality of imported State water. It is proposed that reverse osmosis, nanofiltration and electro dialysis technologies be demonstrated side by side for long-term operating and economic data. The facility could become a location to provide operator training and to make it more accessible for other communities to implement brackish water desalination.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
U.S. ARMY CORPS OF ENGINEERS								
General Investigations - Surveys								
101	Tehama Hamilton City Flood Control Study New (Tehama, Glenn)							— ¹
102	Northern California Streams, Sacramento River Fish Migration (Solano, Yolo)	Federal NonFed Total	1,500,000 900,000 2,400,000	210,000	410,000	350,000	300,000	300,000
104	Northern California Streams, Winters and Vicinity (Yolo)	Federal NonFed Total	1,250,000 750,000 2,000,000	160,000	350,000	300,000	200,000	200,000
105	Northern California Streams - Cache Creek Environmental Restoration	Federal NonFed Total	1,250,000 750,000 2,000,000	0	300,000	250,000	200,000	200,000
106	Northern California Streams - New Magpie Creek (Sacramento)							— ¹
107	Northern California Streams, Yuba River Basin	Federal NonFed Total	1,570,000 1,050,000 2,620,000	1,216,000	254,000	200,000	100,000	100,000
110	Colusa Basin Drain (Also see CWC 621)					--	--	0
112	Sacramento River and Tributaries - New Ecosystem Management Study	Federal NonFed Total	2,000,000 0 ² 2,000,000	0	0	800,000	0	800,000
120	Stockton Metropolitan Area Study New (San Joaquin)							800,000 ³
121	Sacramento-San Joaquin Delta Investigation	Federal NonFed Total	5,940,000 2,975,000 8,915,000	3,894,000	261,000	700,000	800,000	800,000
122	Sacramento-San Joaquin Delta Little Holland Tract	Federal NonFed Total	1,250,000 750,000 2,000,000	--	210,000	--	290,000	290,000
123	Sacramento-San Joaquin Delta Prospect Island (Solano)	Federal NonFed Total	875,000 525,000 1,400,000	188,000	168,000	200,000	100,000	100,000
124	Sacramento-San Joaquin Delta Western Delta Islands (Central Costa, Sacramento)	Federal NonFed Total	2,000,000 1,200,000 3,200,000	165,000	635,000	550,000	0	300,000
125	Reservoir Flood Release Coordination - New San Joaquin River							75,000

¹ CWC supports Corps' recommendation that this project is to be funded under "Continuing Authorities" Program (Section 205)

² Reconnaissance Study is 100 percent federally funded. Non-Federal Cost sharing will begin at Feasibility Study Level

³ Farmington Dam (CWC 131) will be included in the \$800,000 CWC recommends for the new Stockton Metropolitan Area Study (CWC 120)

(Rev. 3/14/95)

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
130	Friant Dam New						--	0
131	Farmington Dam New	Federal NonFed Total	600,000 0 ¹ 600,000	--	0	600,000	0	— ³

¹ Reconnaissance Study is 100 percent federally funded. Non-Federal Cost sharing will begin at Feasibility Study Level

³ Farmington Dam (CWC 131) will be included in the \$800,000 CWC recommends for the new Stockton Metropolitan Area Study (CWC 120)

CWC Nn	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
132	San Joaquin River Basin, South Sacramento County Streams	Federal NonFed Total	2,070,000 1,400,000 3,470,000	630,000	168,000	200,000	500,000	500,000
133	Firebaugh Riparian Restoration and Management Plan (Fresno)							75,000*
134	San Joaquin River Basin, Firebaugh & Mendota (Fresno)	Federal NonFed Total	875,000 525,000 1,400,000	98,000	252,000	232,000	0	150,000
135	San Joaquin River Basin, Arroyo Pasajero (Fresno) (Also see CWC 660)	Federal NonFed Total	3,195,000 2,330,000 5,525,000	1,170,000	850,000	977,000	700,000	700,000
136	San Joaquin River Basin, Pine Flat Dam, Fish and Wildlife Habitat Restoration (Fresno)	Federal NonFed Total	2,000,000 1,500,000 3,500,000	500,000	168,000	200,000	500,000	500,000
137	San Joaquin River Basin, Caliente Creek (Kern)	Federal NonFed Total	2,944,000 1,147,000 4,091,000	2,521,000	252,000	300,000	171,000	171,000
138	San Joaquin River Basin, Kaweah River Basin (Also see CWC 238)	Federal NonFed Total	1,757,000 1,432,000 3,189,000	1,457,000	260,000	--	40,000	40,000
139	San Joaquin River Basin, Tule River Basin	Federal NonFed Total	1,444,000 1,129,000 2,573,000	819,000	25,000	--	0	200,000
151	Marin County Shoreline - San Clemente Creek (Also see CWC 251)	Federal NonFed Total	1,122,000 675,000 1,797,000	743,000	145,000	140,000	234,000	234,000
152	Upper Guadalupe River (Santa Clara)	Federal NonFed Total	2,580,000 2,100,000 4,680,000	1,820,000	246,000	100,000	285,000	285,000
153	Upper Penitencia Creek (Santa Clara)	Federal NonFed Total	750,000 450,000 1,200,000	40,000	260,000	150,000	0	300,000
171	Lower Mission Creek (Santa Barbara)	Federal NonFed Total	2,799,000 750,000 3,549,000	1,549,000	419,000	--	81,000	300,000
180	Central Basin Groundwater Project (Los Angeles)	Federal	1,845,000	750,000	0	--	375,000	375,000
181	Northern Los Angeles County	Federal NonFed Total	1,250,000 750,000 2,000,000	150,000	350,000	350,000	0	0
182A	Los Angeles County, Drainage Water Conservation and Supply (Hansen and Lopez Dams)	Federal NonFed Total	1,270,000 1,120,000 2,390,000	150,000	250,000	350,000	400,000	400,000
182B	Los Angeles County, Drainage Water Conservation and Supply (Santa Fe & Whittier Narrows Dams)	Federal NonFed Total	1,360,000 1,210,000 2,570,000	150,000	250,000	350,000	460,000	460,000
183	Southeast Los Angeles Water Conservation	Federal NonFed Total	600,000 0 ^q 600,000	--	503,000	--	0	0
184	Seven Oaks and Prado Dams Water Conservation (San Bernardino, Riverside, Orange)	Federal NonFed Total	1,168,000 1,090,000 2,258,000	503,000	400,000	400,000	265,000	265,000
185	San Antonio Creek (San Bernardino)	Federal NonFed Total	1,125,000 675,000 1,800,000	--	300,000	--	150,000	350,000
186	Mission Zanja Creek (San Bernardino)	Federal NonFed Total	1,370,000 870,000 2,240,000	500,000	0	300,000	0	300,000
187	Norco Bluffs, Santa Ana River (Riverside)	Federal NonFed Total	1,430,000 925,000 2,355,000	855,000	200,000	400,000	0	375,000
188	Whitewater River Basin (Riverside)	Federal NonFed Total	2,080,000 1,655,000 3,735,000	535,000	310,000	650,000	370,000	370,000
Preconstruction Engineering and Design								
201	American River Watershed	Federal NonFed Total	19,200,000 0 ^q 19,200,000	8,962,000	2,099,000	2,000,000	3,000,000	3,000,000
212	Tule River - Success Reservoir (\$700,000 in for O&M for seismic) (Tulare)	Federal NonFed Total	3,179,000 0 3,179,000	1,638,000	841,000	585,000	700,000	700,000
218	Kaweah River (Tulare) (Also see CWC 138)	Federal NonFed Total	3,900,000 0 ^q 3,900,000	0	0	500,000	0	500,000

^q Reconnaissance Study is 100 percent federally funded. Non-Federal Cost sharing will begin at Feasibility Study Level.
* To be funded under "Project Modifications for Improvement of the Environment" Program (Section 1135)

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
251	San Clemente Creek (Also see CWC 151)	Federal	1,600,000	0	0	0	0	150,000
		NonFed	0					
		Total	1,600,000					
252	Napa River Flood Control Project	Federal	11,200,000	9,513,000	900,000	900,000	787,000	787,000
		NonFed	0					
		Total	11,200,000					
253	San Rafael Canal (Marin)	Federal	2,110,000	1,168,000	692,000	565,000	250,000	250,000
		NonFed	0					
		Total	2,110,000					
254	Pajaro River Watsonville (Santa Cruz)	Federal	1,650,000	0	500,000	--	500,000	500,000
		NonFed	0					
		Total	1,650,000					
255	San Lorenzo River (Santa Cruz)	Federal	1,000,000	291,000	609,000	500,000	100,000	100,000
		NonFed	0					
		Total	1,000,000					
Construction - General								
301	Upper Sacramento River - Golden State Island (1135)	Federal	3,000,000		500,000 ¹	500,000	0	500,000
		NonFed	1,000,000					
		Total	4,000,000					
302	Sacramento River Restoration at Glenn-Colusa Irrigation District (Glenn) (Also see CWC 622)	Federal	10,650,000	2,193,000	400,000	400,000	0	300,000
		NonFed	3,550,000					
		Total	14,200,000					
303	Sacramento River Bank Protection	Federal	112,200,000	85,872,000	2,400,000	2,400,000	3,000,000	3,000,000
		NonFed	46,900,000					
		Total	159,100,000					
304	Sacramento River Flood Control Project	Federal	76,375,000	74,975,000	1,300,000	2,200,000	100,000	100,000
		NonFed	95,628,000					
		Total	172,003,000					
305	Mid-Valley Area New Levee Reconstruction	Federal	17,000,000	1,352,000	870,000	--	0	500,000
		NonFed	5,600,000					
		Total	22,600,000					
306	Marysville/Yuba City Levee Reconstruction	Federal	23,300,000	2,937,000	2,700,000	3,000,000	6,000,000	6,000,000
		NonFed	7,700,000					
		Total	31,000,000					
307	Lower Sacramento Area New Levee Reconstruction	Federal	3,900,000	5,000	1,530,000	--	0	500,000
		NonFed	1,300,000					
		Total	5,200,000					
308	Sacramento Urban Area Levee Reconstruction (Floodwall) Project (Sacramento)	Federal	28,800,000	23,640,000	1,263,000	1,500,000	1,870,000	1,870,000
		NonFed	18,000,000					
		Total	46,800,000					
309	West Sacramento Project	Federal	15,200,000	1,595,000	752,000	500,000	7,000,000	7,000,000
		NonFed	5,000,000					
		Total	20,200,000					
310A	Yolo Basin Wetlands	Federal	7,170,000	2,554,000	3,896,000	2,000,000	720,000	720,000
		NonFed	4,830,000					
		Total	12,000,000					
310B	Yolo Basin Wetlands (Davis site)	Federal	800,000	250,000	30,000	--	--	--
		NonFed						
		Total	800,000					
311	San Joaquin River New China Island Habitat Restoration	Federal	4,500,000 ¹		0	500,000	--	500,000 ¹
		NonFed	1,500,000					
		Total	6,000,000					
312	New Melones Lake (Calaveras, Foothillmet)	Federal	400,500,000	370,993,000	0	1,000,000	0	1,000,000
		NonFed	0					
		Total	400,500,000					
322	Merced County Streams	Federal	85,900,000	14,849,000	699,000	830,000	699,000	699,000
		NonFed	38,600,000					
		Total	124,500,000					
331	Wildcat and San Pablo Creeks (Contra Costa)	Federal	17,700,000	14,303,000	2,157,000	2,157,000	1,240,000	1,240,000
		NonFed	15,100,000					
		Total	32,800,000					
332	Guadalupe River (Santa Clara)	Federal	63,300,000	24,177,000	6,073,000	10,000,000	8,100,000	8,100,000
		NonFed	74,470,000					
		Total	137,770,000					
333	Covote and Berryessa Creeks (Santa Clara)	Federal	41,850,000	10,510,000	12,000,000	12,000,000	12,000,000	12,000,000
		NonFed	56,350,000					
		Total	98,200,000					
334	Santa Paula Creek (Ventura)	Federal	17,100,000	7,297,000	500,000	500,000	300,000	4,000,000
		NonFed	4,800,000					
		Total	21,900,000					
381	Los Angeles County Drainage Area Project	Federal	283,000,000	7,554,000	2,896,000	500,000	11,367,000	11,367,000
		NonFed	177,000,000					
		Total	460,000,000					

¹ To be funded under "Project Modifications for Improvement of the Environment" Program (Section 1135)

CWC No	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
382	Santa Ana River Mainstem (Use \$5.0 million to start San Timoteo Creek)	Federal 778,000,000 NonFed 555,000,000 Total 1,333,000,000	325,681,000	69,945,000	66,000,000	70,249,000	70,249,000
U.S. BUREAU OF RECLAMATION							
General Investigations (Mid-Pacific Region)							
505	American River Folsom South Optimization Study	Federal 1,052,318 NonFed 2,150,000 Total 3,202,318	435,100	400,000	400,000	--	400,000
530	San Joaquin River Basin Comprehensive Plan	Federal 1,262,500 Restoration 2,715,000 NonFed 1,600,000 Total 5,577,500	1,191,277 495,431	1,000,000	1,000,000	1,000,000	1,000,000
535	Minor Work in connection with completed projects	Federal Continuing	211,276	10,000	10,000	10,000	10,000
537	General Planning Studies	Federal Continuing	0	197,000	350,000	550,000	550,000
540	Technical Assistance to States	Federal Continuing	1,630,449	125,000	140,000	140,000	140,000
545	Investigation of Existing Projects	Federal Continuing	153,367	30,000	30,000	30,000	30,000
550	Environmental and Interagency Coordination Activities	Federal Continuing	15,761,363	373,000	350,000	350,000	350,000
Construction Projects (Mid-Pacific Region)							
600	Trinity River Restoration Program	Federal 307,105,903	301,507,396	4,295,000	5,000,000	5,000,000	5,000,000
610	Shasta Division						
611	Temperature Control Device - Shasta Dam	Federal 72,963,000 Restoration 7,037,000 NonFed 0 Total 80,000,000	6,226,466 1,312,777	18,000,000 7,037,000	5,000,000 7,037,000	549,000 11,281,000	549,000 11,281,000
612	Coleman National Fish Hatchery Modification	Federal 29,358,000 Restoration 5,335,000 Total 34,693,000	0	0 2,735,000	0 2,735,000	0	Support ¹
613	Anderson-Cottonwood Irrigation District Added Diversion Dam					200,000	200,000
620	Sacramento River Division			75,000	--	--	750,000
621	Colusa Basin Drain (Also see CWC 110)						
622	Hamilton City Pumping Plant Fish Facility (Glenn) (Also see CWC 302)	Federal 37,315,000 Restoration 0 NonFed 0 Total 37,315,000	1,237,270 0 0	1,425,000	1,500,000	0	3,000,000
623	Winter-Run Chinook Salmon Captive Broodstock Program	USBR 700,000 USFWS 0 NOAA 0 Total NonFed 0 Total 700,000	1,164	400,000	250,000 250,000 171,556 1,610,000 2,281,556	0	1,100,000
624	RBDD Demonstration Research Facility Evaluation	Federal 5,830,000 Restoration 920,000 NonFed 0 Total 6,750,000	383,459 0	400,000 920,000	920,000	0	1,300,000
625	RBDD Fish Passage Program	Federal 5,163,000 Restoration 500,000 NonFed 0 Total 5,663,000	1,299,988 0	495,000 500,000	995,000	0	1,000,000
626	RBDD Demonstration Research Pumping Facility	Federal 9,591,808	5,902,667	0	0	0	0 ²
627	Central Valley Project Improvement Act Supporting Investigations	Federal 1,700,000 Restoration 3,300,000 NonFed 0 Total 5,000,000	0 84	0	1,000,000	1,500,000	1,500,000
630	Auburn-Folsom South Unit	Fed 2,335,830,000 NonFed 2,350,000 Total 2,338,180,000	353,311,618 952,624	2,137,000	2,162,000	2,000,000	2,000,000
640	Delta Division						
641	Georgians Slough Fish Barrier	Federal 0 NonFed 0	400,000	350,000		0	0
642	Suisun Marsh Protection	Federal 60,574,000	26,168,493	800,000	2,000,000	300,000	300,000
643	Delta Support Program (Interagency Ecological Program)	Federal 50,467,387	16,935,743	3,024,000	4,024,000	3,200,000	3,200,000
644	Bay/Delta Ecosystem Partnership	Federal 0 NonFed 0	0	400,000	--	2,500,000	2,500,000
645	South Delta Barriers	Federal 0 Restoration 0	41,847	200,000	3,000,000	500,000	500,000

¹ CWC continues to vigorously support completion of the Station Development Plan, but recommends no additional FY96 funding in order that the Shasta Temperature Control Device proceed toward a 1996 completion.

² No additional funds needed, facility to be completed with FY95 funding.

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
646	Fish Screen at Rock Slough New (Contra Costa)	Restoration						80,000
640	San Joaquin Division							
641	Land Retirement (Includes Prospect Islands)	Federal	46,593,000	0	1,228,000		0	0
		Restoration	<u>11,874,000</u>	<u>25,758</u>	<u>6,974,000</u>	6,974,000	6,118,000	6,118,000
		Total	58,467,000	25,758	8,202,000			
652	San Joaquin Basin Action Plan	Federal	13,787,000	0	0		0	0
		Restoration	<u>13,037,000</u>	<u>471,818</u>	<u>5,437,000</u>	5,437,000	1,000,000	1,000,000
		Total	26,824,000	471,818				
653	Water Acquisition	Federal	43,413,000	0	0	0	0	0
		Restoration	<u>7,587,000</u>	<u>2,319,580</u>	<u>5,587,000</u>	5,587,000	11,005,000	11,005,000
		Total	51,000,000	2,319,580				
654	Real Time Management Demonstration - New San Joaquin River Management Plan							300,000
660	San Luis Unit - CVP (Includes funds for Arroyo Pasajero flood control project)	Fed	1,524,956,000	563,833,261	647,000	676,000	800,000	800,000
		NonFed	<u>232,772,114</u>	<u>209,334,250</u>			<u>275,000</u>	
		Total	1,757,728,114	773,167,511			1,075,000	
670	Miscellaneous Project Programs (Mid-Pacific Region)							
671	Anadromous Fish Program	Federal	12,000,000	0	0		0	0
		Restoration	<u>4,570,000</u>	<u>264,496</u>	<u>2,295,000</u>	2,295,000	3,000,000	3,000,000
		Total	16,570,000	264,496				
672	Central Valley Assessment/ Monitoring Program	Federal	17,800,200	0	0		0	0
		Restoration	<u>2,035,000</u>	<u>0</u>	<u>2,035,000</u>	1,035,000	2,000,000	2,000,000
		NonFed	<u>0</u>	<u>0</u>	<u>0</u>			
		Total	19,835,000	0				
673	CVP Water Augmentation Program (Study)	Federal	0	0	0		0	0
		Restoration	<u>2,450,000</u>	<u>571,935</u>	<u>900,000</u>	900,000	0	
		Total	2,450,000	571,935				
674	Fish Screening Criteria Study - New							500,000
675	Coho Salmon Program (Also see CWC 685 and 686)	Federal	150,000	0	150,000	--	0	0
676	Dedicated Project Yield	Federal	950,000	0	0		0	0
		Restoration	<u>550,000</u>	<u>224,820</u>	<u>275,000</u>	275,000	375,000	375,000
		Total	1,500,000	224,820				
677	Ecosystem Water Conservation Study	Federal	7,600,000	0	0		1,900,000	1,900,000
		Restoration	<u>1,950,000</u>	<u>370,295</u>	<u>1,200,000</u>	1,200,000	0	
		NonFed	<u>0</u>	<u>0</u>	<u>0</u>			
		Total	9,550,000	370,295				
678	Evaluate Project Operations	Federal	800,000	0	0	0	300,000	300,000
		Restoration	<u>460,000</u>	<u>18,417</u>	<u>230,000</u>	230,000	0	
		NonFed	<u>0</u>	<u>0</u>	<u>0</u>	0		
		Total	1,200,000	18,417				
679	Flood Agricultural Lands for Waterfowl Yield Enhancement	Federal	19,000,000	0	0		0	0
		Restoration	<u>1,000,000</u>	<u>0</u>	<u>1,000,000</u>	1,000,000	500,000	500,000
		Total	20,000,000	0				
680	Kaweah River Delta Corridor Enhancement Project	Federal	1,000,000	30,599	0	Support	0	0
681	Ongoing Contracts/CWPSC/Melones	Federal	9,257,551	774,555	1,350,000	1,350,000	3,669,000	3,669,000
682	Project Fishes Impacts	Federal	500,000	0	0	0	0	0
		Restoration	<u>0</u>	<u>5,374</u>	<u>0</u>	0	0	
		Total	500,000	5,374				
683	Refuge Water Supply	Federal	49,696,000	0	0		0	
		Restoration	<u>3,310,000</u>	<u>486,795</u>	<u>3,310,000</u>	3,310,000	3,000,000	3,000,000
		NonFed	<u>0</u>	<u>0</u>	<u>0</u>			
		Total	53,006,000	486,795				
684	Refuge Wheeling Costs	Federal	11,300,000	0	0		0	0
		Restoration	<u>2,400,000</u>	<u>764,369</u>	<u>1,200,000</u>	1,200,000	1,700,000	1,700,000
		NonFed	<u>0</u>	<u>0</u>	<u>0</u>			
		Total	13,700,000	764,369				
685	Salmon Stamp Program (Also see CWC 675 and 686)	Federal	100,000	0	100,000	100,000	0	0
686	Spring Run Salmon Program (Also see CWC 675 and 685)	Federal	300,000	0	300,000	300,000	0	0
687	Unscreened Diversions (Also see CWC 688 and 689)	Federal	27,119,000	0	4,000,000	4,000,000	6,000,000	6,000,000
		Restoration	<u>616,951</u>	<u>616,951</u>	<u>0</u>			
		NonFed	<u>0</u>	<u>0</u>	<u>0</u>			
		Total	28,119,000	616,951				
688	Reclamation District 108 (Unscreened Diversions) (Also see CWC 687 and 689)	Federal	450,000	0	450,000		0	650,000
		Restoration	<u>0</u>	<u>0</u>	<u>0</u>		0	
		NonFed	<u>0</u>	<u>0</u>	<u>0</u>		0	
		Total	450,000	0				
689	Reclamation District 1004 (Unscreened Diversions) (Also See CWC 687 and 688)	Federal	215,000	0	215,000		0	215,000
		Restoration	<u>0</u>	<u>0</u>	<u>0</u>		0	
		NonFed	<u>0</u>	<u>0</u>	<u>0</u>		0	
		Total	215,000	0				

CWC No	Project		Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1995	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
A90	Water Conservation Projects	Federal	3,100,000	234,144	1,000,000	1,000,000	0	0
		Restoration	2,000,000	32,474	1,000,000	0		
		Total	5,100,000	266,618	2,000,000			
A91	Wetlands Joint Venture - Added Upper Sacramento River						500,000	500,000
A92	Spawning Canal - Locations as needed Added						600,000	600,000
Operation and Maintenance (Mid-Pacific Region)								
701	Central Valley Project	Federal	Continuing		70,504,000	68,349,000	67,739,000	67,739,000
703	Reclamation Law Administration	Federal	Continuing		1,800,000	1,800,000	1,530,000	1,530,000
704	Land Resources Management Program	Federal	Continuing		317,000	317,000	1,254,000	1,254,000
705	Cachuma Project	Federal	Continuing		239,000	239,000	716,000	716,000
706	Orland Project	Federal	Continuing		578,000	578,000	601,000	601,000
707	Solano Project	Federal	Continuing		1,827,000	1,827,000	2,172,000	2,172,000
Loan Projects (Westwide)								
800	Small Reclamation Projects Admin	Federal	Continuing		600,000	600,000	425,000	600,000
Loan Projects (Mid-Pacific Region)								
R01	Water Reclamation Facility for Crop Irrigation (Monterey) (Salinas)	Federal	20,892,000		1,470,000	500,000	1,980,000	1,980,000
		USBR funds			<900,000>		<1,100,000>	<1,100,000>
		Treasury funds			<570,000>		<880,000>	<880,000>
		NonFed	6,900,000					
		Total	27,792,000					
R02	Castroville Irrigation Water Supply Project (Monterey)	Federal	32,600,000		1,755,000	500,000	2,710,000	2,710,000
		USBR funds			<1,064,000>		<1,500,000>	<1,500,000>
		Treasury funds			<691,000>		<1,210,000>	<1,210,000>
		NonFed	10,014,000					
		Total	43,514,000					
PL 102-575 (Mid-Pacific Region)								
901	San Francisco Area Water Reclamation Study	Federal	3,690,000		790,000	790,000	700,000	1,500,000
		NonFed	3,690,000					
		Total	7,380,000					
903	San Jose Area Water Reclamation and Reuse Program	Federal	32,500,000	0	1,715,000	-	1,750,000	9,000,000
		NonFed	97,400,000					
		Total	130,000,000					
General Investigations (Lower Colorado Region)								
1001	Colorado River Water Quality Improvement Feasibility Investigation (I.C.en) (\$19,000 in CA in FY 95)	Federal	9,465,000	8,564,115	210,000	310,000	75,000	75,000
1002	Environmental and Interagency Coordination Activities	Federal	Continuing	11,248,261	85,000	85,000	100,000	100,000
1003	General Planning	Federal	Continuing	0	296,000	296,000	375,000	375,000
1004	Impenal Valley Water Reclamation and Reuse Studs	Federal	500,000	0	75,000	75,000	175,000	175,000
		NonFed	500,000					
		Total	1,000,000					
1005	Investigation of Existing Projects	Federal	Continuing	308,076	50,000	50,000	50,000	50,000
1006	Lower Colorado River Regulators Storage Study	Federal	300,000	150,000	150,000	150,000	0	0
1007	Minor Work on Completed Projects	Federal	Continuing	325,067	55,000	55,000	55,000	55,000
1008	Salton Sea Area - Studs	Federal	200,000	100,000	100,000	100,000	0	100,000
		NonFed	200,000					
		Total	400,000					
1009	Technical Assistance to States	Federal	Continuing	1,304,378	175,000	175,000	265,000	265,000
1010	Lower Owens River Added Environmental Studs	Federal	300,000				100,000	100,000
		NonFed	300,000					
		Total	600,000					
1011	Alaibu Creek Fishen Added Enhancement Studs	Federal	250,000				50,000	50,000
		NonFed	250,000					
		Total	500,000					
1012	I.C. Indian Water Mgmt Studs New	Federal	200,000				75,000	75,000
1013	Southern California Coastal New Water Supply Studs	Federal	750,000				50,000	50,000
		NonFed	750,000					
		Total	1,500,000					
Operations and Maintenance (Lower Colorado Region)								
(CWC supported the recommendations of the Colorado River Board for following O&M projects)								
1101	Parker-Davis Project (\$1,066,000 in CA in FY 95)	Federal	Continuing		3,486,000	3,486,000	4,101,000	4,101,000
1102	Yuma Area Projects (\$6,613,000 in CA in FY 95)	Federal	Continuing		23,084,000	23,084,000	21,332,000	21,332,000
Loan Projects (Lower Colorado Region)								
1201	Eastern Municipal Water District Water Facilities Plan (Riverside)	Federal	31,100,000	17,052,272	4,160,000	4,160,000	6,000,000	6,000,000
		USBR funds		<7,982,000>	<2,000,000>		<2,200,000>	<2,200,000>
		Treasury funds		<9,070,272>	<2,160,000>		<3,800,000>	<3,800,000>
		NonFed	13,621,400					
		Total	44,721,400					

CWC No.	Project	Estimated Costs	Estimated Costs Through 9/30/94	Allocations for FY 1993	CWC Recommendation FY 1995	President's Budget FY 1996	CWC Final Recommendation FY 1996
1202	Chino Basin Desalination (Santa Ana Watershed Project Authority) (San Bernardino, Riverside)	Federal 32,064,000 USBR funds Treasury funds NonFed 15,623,000 Total 47,687,000	0	1,878,000 <900,000> <978,000>	500,000	2,717,000 <1,100,000> <1,617,000>	2,717,000 <1,100,000> <1,617,000>
1203	San Sevaire Creek Water Project (San Bernardino, Riverside)	Federal 51,976,594 NonFed 30,871,816 Total 82,848,410	0	0	500,000	0	250,000
1204	Temescal Valley Project (Kinross Valley MWD) (Riverside)	Federal 22,270,000 USBR funds Treasury funds NonFed 10,659,000 Total 32,929,000	0	620,000 <350,000> <270,000>	500,000	1,397,000 <700,000> <697,000>	1,397,000 <700,000> <697,000>
PL 102-575 (Lower Colorado Region)							
1301	L.A. Area Water Reclamation and Reuse (Includes West Basin, East Valley and Terminal Island)	Federal 68,120,000 NonFed 204,360,000 Total 272,480,000	5,250,000	8,250,000	5,250,000	9,300,000	9,300,000
1302	Orange County Regional Water Reclamation Project - Phase I	Federal 42,600,000 NonFed 127,800,000 Total 170,400,000	0	0	250,000	--	600,000
1303	San Gabriel Basin Project (Includes San Gabriel Basin, Diemo, Rio Hondo & San Gab Valley Wtr Recl)	Federal 38,090,000 NonFed 114,270,000 Total 152,360,000	5,000,000	5,000,000	5,000,000	9,750,000	9,750,000
1304	San Diego Area Reclamation (Includes San Diego, Escondido, Powas Padre Dam Muni WD Otay Water Dist. and San Diego County Water Authority)	Federal 172,590,000 NonFed 517,770,000 Total 690,360,000	0	2,500,000	Support	2,340,000	9,000,000
1305	Water Replenishment District of Southern California	Federal 20,305,000 NonFed 22,519,000 Total 42,824,000	0	0	1,775,000	--	Support
1306	Brackish Water Reclamation Demonstration New Facility (Ventura)						500,000
1309	Southern California Comprehensive Water Reclamation and Reuse General Investigations Program	Federal 3,000,000 NonFed 3,000,000 Total 6,000,000	406,000	325,000	325,000	750,000	750,000
Colorado River Salinity Control (CWC supported the recommendations of the Colorado River Board for following CRSC projects)							
1401	Colorado River Salinity Control Program (G I)	Federal 61,880,082	55,330,468	1,152,846		375,000	375,000
Colorado River Basin Salinity Control Project (Construction)							
1402	Title I Division	Federal 458,835,000	396,658,936	3,011,000		2,300,000	2,300,000
1403	Title II Division						
1403A	Grand Valley Unit (UC Only)	Total 257,570,000	138,453,310	7,070,000	7,270,000	5,799,000	5,799,000
1403C	Lower Gunnison Basin Unit (UC Only)	Federal 251,852,000	23,316,424	698,000	698,000	1,231,000	1,231,000
1403B	Paradox Valley Unit (UC Only)	Federal 66,339,157	63,689,157	2,350,000	3,050,000	300,000	300,000
1404	Title II, New Format	To be determined	0	0		6,000,000	6,000,000

PREPARED STATEMENT OF MICHAEL STEARNS, MEMBER, THE
RECLAMATION BOARD, STATE OF CALIFORNIA

1996 Summary
(In \$1,000)

CORPS OF ENGINEERS' PROJECTS	Page	President's Budget	Board Recommends
I. General Investigations (Surveys)			
A. Northern California Streams			
-- Tehama-Hamilton City Flood Control Study	2		*
-- Winters and Vicinity (Yolo)	2	200,000	200,000
-- Cache Creek Environmental Restoration	2	200,000	200,000
-- Yuba River Basin	3	100,000	100,000
-- Sacramento River and Tributaries - Ecosystem Management Plan	3	0	800,000

B. Sacramento-San Joaquin Delta			
-- Sacramento-San Joaquin Delta Investigation	3	800,000	800,000
-- South Sacramento County Streams	3	500,000	500,000
-- Prospect Island	4	100,000	100,000
-- Western Delta Islands	4	0	300,000
C. San Joaquin River Basin			
-- Arroyo Pasajero	4	700,000	700,000
-- Caliente Creek	5	171,000	171,000
-- Firebaugh and Mendota	5	0	150,000

II. General Investigations (Preconstruction Engineering and Design)

A. American River Watershed	5	3,000,000	3,000,000
B. Mid-Valley Area Levee Reconstruction	5	0	500,000
C. Lower Sacramento Area Levee Reconstruction	6	0	500,000
D. Kaweah River	6	0	500,000
E. Tule River (Success Reservoir) (Funded Under O&M)	6	700,000	700,000

III. Construction (General)

A. Marysville/Yuba City Levee Reconstruction	6	6,000,000	6,000,000
B. Merced County Streams	6	699,000	699,000
C. Sacramento River Bank Protection	7	3,000,000	3,000,000
D. Sacramento River Flood Control	7	100,000	100,000
E. Sacramento River at Glenn-Colusa Irrigation District	7	0	300,000
F. Sacramento Urban Area Levee Reconstruction (Floodwall)	7	1,870,000	1,870,000
G. Upper Sacramento River Demonstration - Golden State Island	7	0	500,000**
H. China Island Environmental Restoration	8	--	500,000**
I. West Sacramento	8	7,000,000	7,000,000
J. Yolo Basin Wetlands	8	720,000	720,000

*The Board supports this project to be funded under the "Continuing Authorities" Program (Section 205).

**To be funded under "Project Modifications for Improvement of the Environment" Program (Section 1135).

THE RECLAMATION BOARD'S RECOMMENDATIONS

The Reclamation Board, as the State agency which furnishes required local assurances for a majority of the federal flood control projects in California's Central Valley, respectfully submits this statement of support for the following projects.

The projects described below are of particular importance to the health, safety, and well-being of Central Valley residents and are important to The Reclamation Board to see that they are started and/or kept on schedule.

I. General Investigations (Surveys)

A. Northern California Streams

This survey, authorized in 1962, is a study of the Sacramento River and its tributaries in regard to flood control measures. The following are interim study proposals for funding in Fiscal Year 1996.

Tehama-Hamilton City Flood Control Study (Tehama and Glenn Counties)

The study area would cover two small towns on the west bank of the Sacramento River in Tehama and Glenn Counties. The town of Tehama was flooded in 1986 and some homes were raised. In 1995, the area was flooded again, the homes that did not qualify for raising were again flooded. Hamilton City is protected by a levee that is not high enough to give the city adequate protection. This area needed emergency sandbagging protection in 1986 and again in 1995.

The Board recommends that a study be conducted by the Corps of Engineers under Section 205 (small projects).

Winters and Vicinity (Yolo)

The study area is in southwestern Yolo County approximately 30 miles west of Sacramento. The City of Winters is located along Putah Creek and Dry Creek and is bordered to the north by Moody Slough and Chickahominy Slough. Winters, population 5,000, floods every two to five years due primarily to inadequate flow capacity of Moody Slough. Flooding has also occurred from Dry Creek, Putah Creek, Chickahominy Slough, and multiple local canals. The 1980 flood covered more than 12,000 acres and flooding during extended rainstorms has caused damage to structures, streets and roads, agricultural land, equipment and crops. Potential projects include detention basins combined with diversion channels, realignment of canals and nonstructural measures including floodproofing and raising of structures.

The Board supports the \$200,000 in the President's Budget.

Cache Creek Environmental Restoration

The Cache Creek basin is located about 15 miles northwest of Sacramento, California and contains about 1,150 square miles of drainage area. The Cache Creek riparian corridor is a 30-mile reach of lower Cache Creek from the town of Capay to the Cache Creek Settling Basin. The riparian corridor has been severely degraded as a result of multiple activities and developments along the creek including flood control works, recreation, water supply, and gravel mining. In addition, upstream water-related projects have changed hydrologic conditions along Cache Creek and have significantly reduced the wildlife habitat within the area. Local interests strongly support developing an environmental restoration plan to preserve and restore wildlife resources and vegetation along the Cache creek corridor. Potential restoration measures include gravel pit restoration, wetland creation within the settling basin, and creekside riparian plantings. The gravel pit proposal would involve construction of gates, canals, and small detention structures at abandoned gravel sites. Water would be diverted into the restored sites thereby creating seasonal and permanent wetlands and riparian areas.

The Board supports the \$200,000 in the President's Budget to complete the reconnaissance study.

Yuba River Basin

The 1986 flood and the resulting levee failure made everyone aware that flooding is a public safety issue in this area. Thus, a reconnaissance-level study of alternatives for flood control and related purposes in the Yuba River watershed was completed, and a cost-shared feasibility study was initiated.

The Board supports the \$100,000 in the President's Budget for continuation of this feasibility investigation.

Sacramento River and Tributaries - Ecosystem Management Plan

The Board, by Resolution No. 95-4 dated February 17, 1995, requested the Corps to initiate a new study to evaluate the full Sacramento River Flood Control Project. Working in cooperation with other federal and State agencies and public interests will lead to a comprehensive management plan that considers flood control project modifications or reconfigurations and evaluate the coordinated and/or integrated with existing studies and activities occurring on the Sacramento River. Examples are the Sacramento River Bank Protection Project and the Upper Sacramento River Fisheries and Riparian Habitat Management Plan (SB 1086).

The Board recommends an appropriation of \$800,000 to initiate this investigation.

B. Sacramento-San Joaquin DeltaSacramento-San Joaquin Delta Investigation

The study area is located in Sacramento, Yolo, San Joaquin, Contra Costa, and Solano Counties and extends from the southern limits of the City of Sacramento to Tracy, and from the City of Stockton west to Suisun Bay. The area consists of about 700,000 acres of land segregated into some 100 tracts and islands, bounded by interconnecting waterways, which are confined by 1,100 miles of levees. A critical need for levee rehabilitation throughout the Delta exists. The most recent levee failures in the study area were in February 1986, which caused damages estimated at \$17 million. The purpose of the study is to determine viable improvements for flood control, salinity intrusion caused by levee failures, navigation,

recreation, fish and wildlife, and long-term management of the complex island/waterway network in the Delta.

The Board supports the \$800,000 in the President's Budget for continuation of this investigation.

South Sacramento County Streams

These streams are located in the southerly portions of the City of Sacramento. The existing flood control projects in Sacramento do not address the flood issues in this rapidly developing area. Levees along Morrison Creek and tributaries provide less than a 100-year level of flood protection. Potential projects include a combination of channel and levee improvements and detention facilities.

The Board supports the \$500,000 in the President's Budget for continuation of this investigation.

Prospect Island

The study area is located in the northwest portion of the Sacramento-San Joaquin Delta region, approximately 25 miles southwest of Sacramento. Prospect Island is a 5-mile long, rectangular island comprised of 1,580 acres, bordered by the Sacramento River Deep Water Ship Channel to the west and Miner Slough and Ryer Island to the east. The costs of operating and maintaining the existing ship channel and associated levees could be reduced and needed wetlands could be created. One proposal is to discontinue the use of the existing project levees, inundate the island, and create wetlands. Flood damage prevention will also be studied in conjunction with environmental restoration.

The Board supports the \$100,000 in the President's Budget.

Western Delta Islands

The study area includes Twitchell Island, Jersey Island, and Webb Tract in the Western Delta area in Sacramento and Contra Costa Counties. These islands are at risk of flooding due to levee instability. Failure of any of these islands could cause saltwater to intrude far into the Delta rendering the water unsuitable for agricultural and domestic uses and further adversely impacting existing invaluable fish and wildlife habitat. Department of Water Resources studies conclude that Twitchell and Jersey Islands pose a serious threat and Webb Tract a potential threat to water quality if permanently flooded. Additionally, there is a desire that fish and wildlife resources of the Delta can be restored. The study will emphasize both flood damage prevention and environment restoration.

The Board recommends an appropriation of \$300,000 to continue this investigation.

C. San Joaquin River Basin

This survey, authorized in 1964, will investigate the problems of flood control, irrigation, municipal water supply, power, recreation, and fish and wildlife. Flooding is a major problem and during the severe floods of 1969, 1983, and 1986, the area experienced extensive damages. The following are interim studies supported for funding in Fiscal Year 1995.

Arroyo Pasajero

There is a flood problem associated with the Arroyo Pasajero and Cantua Creek watersheds near Coalinga, California in southwest Fresno County. Updated hydrologic and sedimentation studies now reveal that both the estimated sediment loads and storm volumes are several times greater than original design estimates. There are several public facilities in the floodplain including the California Aqueduct, Lemoore Naval Air Station, Interstate 5, and Highway 198. The lands east of the California Aqueduct are subject to flood damage as well as the Aqueduct.

The Board recommends \$700,000 to continue this investigation.

Caliente Creek

The previous feasibility study determined that a detention basin dam was infeasible. Alternative flood reduction measures are being considered including nonstructural alternatives.

The Board supports the \$171,000 in the President's Budget to finish this feasibility investigation.

Firebaugh and Mendota

The study area is located in northwestern Fresno County, California, approximately 35 miles west of the City of Fresno. The town of Firebaugh is located on the west bank of the San Joaquin River while the town of Mendota is approximately 10 miles southeast of Firebaugh. Current populations of Firebaugh and Mendota are 5,000 and 7,000, respectively. Flooding in the study area is primarily due to overflows from Panoche Creek and Silver Creek, and from inadequate flow capacity of the San Joaquin River due to sediment buildup over time. The February 1969 event flooded over 18,000 acres and caused damages of \$1.8 million. Some areas were under 5 feet of water for almost a month. Construction of the Chowchilla Canal Bypass by the State of California partially addressed localized flooding but siltation is limiting bypass effectiveness and flooding is still a problem.

The Board recommends an appropriation of \$150,000 to continue this investigation.

ii. General Investigations (Preconstruction Engineering and Design)

A. American River Watershed

The Board and the Department of Water Resources acted as the nonfederal sponsor for the Feasibility Study on the American River Watershed which has been completed. This project was not authorized in 1992; however, the Corps was directed to continue work on the critically needed flood control project.

This work will answer the questions that were raised during the authorization hearings. While the study and debate on the type of dam continues, the Sacramento Area still faces one of the most severe threats of flooding in the nation. Resolution of this debate must be resolved expeditiously.

The Board supports the \$3,000,000 in the President's Budget.

B. Mid-Valley Area Levee Reconstruction

The project is located within the boundaries of the Sacramento River Flood Control System in Sutter and Yolo Counties in north-central California. The area includes the Sacramento River, Knights Landing Ridge Cut, and Sutter Bypass and the communities of Knights Landing and Robbins. An evaluation of about 240 miles of the Sacramento River Flood Control Project levees in the Mid-Valley area identified about 20 miles of levees that are structurally deficient. The project includes reconstructing about 10 miles of these levees by installing landside berms with toe drains, relocation of ditches, embankment modifications, slurry cut-off walls, the restoration of levee height and developing land for fish and wildlife mitigation.

The Board will act as the local sponsor for reconstruction work. A Project Cooperation Agreement will be executed prior to initiation of construction currently scheduled for June 1996.

The Board recommends an appropriation of \$500,000 to continue Preconstruction Engineering and Design.

C. Lower Sacramento Area Levee Reconstruction

The project is located within the boundaries of the Sacramento River Flood Control System in Sacramento County in north-central California. The area includes the lower Sacramento River and its distributary sloughs and the town of Clarksburg. An evaluation of about 295 miles of the Sacramento River Flood Control Project levees in the Lower Sacramento area identified about 47 miles of levees that are structurally deficient. The project includes reconstructing about 2 miles of these levees by installing landside berms with toe drains, embankment modifications, the restoration of levee height and developing land for fish and wildlife mitigation.

The Board will act as the local sponsor for reconstruction work. A Project Cooperation Agreement will be executed prior to initiation of construction currently scheduled for June 1996.

The Board recommends an appropriation of \$500,000 to continue Preliminary Engineering and Design.

D. Kaweah River

The study is to evaluate the feasibility to provide additional storage at Lake Kaweah (Terminus Dam) for increased flood protection.

The Board recommends \$500,000 to continue Preconstruction Engineering and design.

E. Tule River (Success Reservoir)

The Corps completed an interim feasibility report in 1992 for the enlargement of the Success Dam and Reservoir spillway on the Tule River. There is presently an unresolved issue on seismic stability. This issue is being investigated by the Corps of Engineers under O&M Appropriations.

The Board supports the \$700,000 in the President's Budget to finish the seismic study.

III. Construction Projects

A. Marysville/Yuba City Levee Reconstruction

The Sacramento River Flood Control Project was authorized in 1917 and modified by various Flood Control and/or River Harbor Acts in 1928, 1937, and 1941.

This program would allow reconstruction of 44 miles of the 134 miles of levees which protect the Marysville/Yuba City area. The program will be cost shared with a number of local agencies. After execution of a Project Cooperation Agreement in 1993, the first of three construction contracts is scheduled to start in 1994.

The Board supports the \$6,000,000 in the President's Budget.

B. Merced County Streams

This project, authorized in 1970, will provide flood protection for Castle Air Force Base, the City of Merced, and adjacent suburban and agricultural lands. Castle Dam has been completed. The construction began in the spring of 1991 and the 1994 funding will finish the check structure in the Main Canal which will complete Phase 1 of the project.

The Board supports the \$699,000 in the President's Budget.

C. Sacramento River Bank Protection

The project, authorized in 1960, is a long-range federal-State effort, aimed at preserving the existing project levee system of the Sacramento River. These existing levees offer flood protection along 192 miles of the Sacramento River between Collinsville (in the Delta) and Chico Landing. The Sacramento River Bank Protection Project work consists of providing some form of bank stabilization at those points which are identified each year as the most critical.

The Board, as the nonfederal sponsor, supports the \$3,000,000 in the President's Budget.

D. Sacramento River Flood Control

This project was authorized in 1917 and modified by various Flood Control and/or River Harbor Acts in 1928, 1937, and 1941. The project comprises a comprehensive system of levees, over-flow weirs, drainage pumping plants, and flood bypass channels, extending along the Sacramento River from Collinsville to Chico Landing.

The Board supports the \$100,000 in the President's Budget.

E. Sacramento River at Glenn-Colusa Irrigation District

This project involves restoration of the hydraulic characteristics of the main channel of the Sacramento River. The Corps is conducting the engineering and design of works to restore the elevation of the Sacramento River in the vicinity of the Glenn-Colusa Irrigation District Intake to conditions existing prior to the flood of 1970.

The Board recommends \$300,000 for additional technical and environmental coordination activities.

F. Sacramento Urban Area Levee Reconstruction (Floodwall)

This is a part of 110 miles of levee that protect the City of Sacramento that was constructed over the last few years. There is a short stretch of levee along the Sacramento River adjacent to downtown Sacramento which has a "Floodwall" on the water side. This "Floodwall" has been determined to be unsafe; however, it was not fixed when the other deficiencies were taken care of as part of this authorization.

The Board supports the \$1,870,000 in the President's Budget to continue construction.

G. Upper Sacramento River Demonstration Project - Golden State Island

The congressional direction for the reconnaissance study being done under the Upper Sacramento Fish and Wildlife Habitat restructuring focussed on environmental restoration rather than an integrated flood plan. While we still believe flood control is an integral part of necessary studies, we do support the results of the reconnaissance study.

Based upon the contents of the site-specific, single-purpose reconnaissance study, we believe that an environmental restoration project in accordance with Section 1135 of the Water Resources Development Act of 1986 is an appropriate action to consider.

It is recommended that a demonstration project for river restoration in accordance with Section 1135 of WRDA 1986 be developed on the upper Sacramento River. Golden State Island site has been selected from the present reconnaissance study. State funding may be available providing the 1135 project is a restoration effort related to the Sacramento River Flood Control Project.

The Board recommends \$500,000 for this project.

H. China Island Environmental Restoration

As an outgrowth of the reconnaissance report on the San Joaquin River Mainstem study, it is strongly urged that a separate environmental restoration project be developed substantially consistent with the Section 1135 of WRDA 1986 program. The locally preferred restoration site is known as China Island and would involve restoring historic wetlands and riparian habitat on about 3,300 acres of land southwest of the San Joaquin River above its confluence with the Merced River.

The restoration would include conversion of levelled agricultural fields and degraded floodplains, dry channels, and riparian corridors. The plan would include the creation of 600 acres of seasonal and semi-permanent wetlands, 800 acres to grow waterfowl food crops and provide nesting cover, and 1,900 acres of seasonally flooded and semi-permanent wetlands with continually flooded riparian corridors. The property is in State ownership.

The Board recommends \$500,000 for this project.

I. West Sacramento

The Board is also the nonfederal sponsor for the West Sacramento flood control project which was authorized for construction by the Water Resources Development Act of 1992.

The Board supports the \$7,000,000 in the President's Budget to continue the construction of this needed flood control project.

J. Yolo Basin Wetlands

The project area is located within the boundaries of the Yolo Bypass which is an operative feature of the Sacramento River Flood Control Project. The Yolo Bypass extends 43 miles from Fremont Weir on the Sacramento River, south to the town of Rio Vista where it rejoins the river. The Putah Creek Sinks Site contains 3,000 acres which will be converted into 2,323 acres of seasonal wetland, 464 acres of grassland/upland, 28 acres of riparian woodland, and 185 acres of permanent wetland. The Yolo Causeway Site contains 200 acres which will be converted into a combination of grassland/upland, riparian woodland, and permanent wetland.

The project was initiated in Fiscal Year 1991 with funds added to the Fiscal Year 1991 Appropriations Act by Congress. Plans and specifications for the site will be completed in April 1994, and construction award is scheduled for August 1994.

The Board supports the \$720,000 in the President's Budget.

LETTER FROM THOMAS J. TINSLEY, PUBLIC WORKS DIRECTOR, GLENN
COUNTY PUBLIC WORKS DEPARTMENT

March 24, 1995

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

Dear Congressman Myers;

On behalf of the citizens of Glenn County, I am writing to urge your committee's support for a project of great concern to our area.

The Sacramento River forms the eastern boundary of Glenn County for approximately 30 miles, the lower 8 miles of which is included in the Corps of Engineers levee project. The severity of the floods that have occurred this winter has increased the concern of area landowners and residents of the town of Hamilton City about the safety and reliability of the existing privately maintained levees north of the Corps facilities.

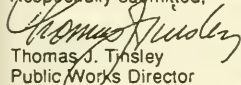
For this reason, there is strong local support for the formation of districts to upgrade and maintain the levees to Corps standards. We cannot do this alone and for this reason we are requesting your support for the first phase of a project to bring the levees in the northern part of our County up to the standards established in the southern area. This project is the Hamilton City/Tehama study, which if implemented would result in the extension of the Corps-maintained levees north to the town of Tehama in Tehama County to our north. Both the towns of Hamilton City and Tehama experienced serious flood damage in the latest storms and only the dedicated efforts of local residents and emergency personnel saved these areas from disaster, and the possible loss of life and property. In addition, Glenn County and local landowners have suffered serious damage to public facilities and crop losses from a levee break on County Road 29 that has failed twice since the first of the year. This break alone will cost several million dollars to repair and future damage would be averted by a well designed system of levees and bank protection.

We recognize the need for local participation in such projects and for this reason the County of Glenn has agreed to act as a local sponsor for the project pending the formation of the appropriate levee districts.

Finally we want to express our appreciation to our Congressman Vic Fazio, for his support of this worthwhile project.

Again we respectfully request your serious consideration and financial support for this badly needed flood control facility.

Respectfully submitted,


Thomas J. Tinsley
Public Works Director

LETTER FROM DON ANDERSON, ANDERSON ORCHARD SERVICES, HAMILTON
CITY, CA

March 23, 1995

U. S. House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable John Myers, Chairman

Dear Congressman Myers,

I would like to introduce myself, Don Anderson, landowner and President of Sacramento Valley Landowners Association, a non-profit organization of land owners along the Sacramento River and its tributaries. The primary concern of our organization is protection from river bank erosion and seepage which each year causes millions of dollars damage to public and private property in the Sacramento River area from Tehama to Ord Bend. We come before you today for funding for the repair of the J Levee near Hamilton City, County Road 29 at Ord Bend, and Tehama Levee town of Tehama. We want to acknowledge the

support of our Congressman Vic Fazio as well as the Board of Supervisors of Glenn County and the Glenn County Public Works Director. Please help with sufficient funding to protect these three areas and towns from the threat of millions of dollars of damage.

Respectfully submitted,



Don Anderson
Concerned Landowner

PREPARED STATEMENT OF DON BRANSFORD, PRESIDENT, GLENN-COLUSA
IRRIGATION DISTRICT

Mr. Chairman, Members of the Subcommittee, my name is Don Bransford. I am a rice farmer from Colusa County, California, and I am President of the Board of Directors of the Glenn-Colusa Irrigation District (GCID).

I appreciate the opportunity to testify before you this morning regarding the federal funding priorities for GCID, and I appreciate the Subcommittee's past efforts to address our concerns.

GCID is the largest and one of the oldest diverters of water from the Sacramento River. The District delivers water to approximately 1,200 families who have about 141,000 acres of land in cultivation in Glenn and Colusa Counties.

The agricultural activities supported by the District help sustain an estimated 12,000 jobs in the region and generate \$255,000,000 in economic activity per year.

The District is also the sole source of surface water for three wildlife refuges -- the Sacramento, Delevan and Colusa National Wildlife Refuges -- that cover some 20,000 acres in the heart of the Sacramento Valley.

GCID has responded to new environmental requirements and to successive years of drought with stringent, but highly successful conservation practices and the implementation of a voluntary groundwater well program.

The District is also firmly committed to obtaining lasting protection of the winter-run salmon and other fishery resources at the Hamilton City Pumping Plant.

Over the last several years, the District has invested over \$2,000,000 on the construction of an interim flat-plate fish screen and other improvements to provide immediate protection to the endangered winter-run chinook salmon and other fish species.

While the new flat-plate screen, installed in late 1993, has been very effective, it is only an interim solution. Permanent protection is needed. Without a new permanent fish screen, the District will continue to face pumping restrictions that will hold water deliveries by the District to just 65 percent of the District's full entitlement.

And, unlike some other projects authorized in the Central Valley Project Improvement Act, the availability of non-federal cost-sharing is not in doubt. The District has set aside \$4,000,000 to date to help pay for the non-federal, 25 percent cost-share of a new permanent fish screen. By the end of the year, the District will have added another \$2,000,000 to the existing funds, for a total of

\$6,000,000. We are ready and able to cost share any federal funds provided by this Committee.

On behalf of GCID, the fishery and all of those whose economic fate is tied to the recovery of the winter run salmon, I respectfully request that you provide \$3,000,000 for the Bureau of Reclamation in fiscal year 1996 to advance work on a permanent new fish screen at the Hamilton City Pumping Plant. Specifically, an allocation of \$3,000,000 is needed to complete the design and engineering work and initiate construction on this important project.

Without such a commitment of funds, construction will be delayed. That will mean less water for the farmers, a less speedy recovery of the fishery and less revenue for the federal Treasury, all because of reduced water deliveries. Failure to provide the funds necessary to advance the project represents a lose-lose-lose proposition. It is bad for the taxpayers, it is bad for the farmers and it is bad for the fishery resource. Again, I urge you to provide an allocation of \$3,000,000 to keep the project moving forward on an optimum schedule.

For the U.S. Army Corps of Engineers, GCID requests the Committee's support of an appropriation of \$300,000 to the Corps of Engineers to continue work on the Sacramento River gradient or riffle restoration project. Construction of a gradient restoration project will improve the safe passage of winter run chinook salmon and other fish in that reach of the Sacramento River by stabilizing the river elevation. This will improve the effectiveness of the existing fish screen as well as any new and/or enhanced fish screen at the GCID diversion.

Finally, Mr. Chairman, GCID requests that the Subcommittee provide adequate funding to initiate design and feasibility studies to construct a siphon across Stony Creek and upgrade the GCID canal facilities, from within the funds made available in the bill through the Central Valley Project Restoration Fund. This project will enable the District to make year-round water deliveries to the three National Wildlife Refuges in the GCID service territory as well as enable year-round water deliveries to other users in the District. These proposed upgrades will allow GCID to better serve the refuges and at the same time better serve our existing agricultural customers. This is the kind of win-win project that should be promoted.

Mr. Chairman, Members of the Subcommittee, on behalf of GCID, I would like to express my appreciation for your past support of our efforts to address the fish bypass problem at the Hamilton City Pumping Plant, and I respectfully request your support once again in the fiscal year 1996 Energy and Water Development Appropriations Act.

Thank you for your consideration.

PREPARED STATEMENT OF PAUL DEVEREUX, DIRECTOR OF ENGINEERING,
SACRAMENTO AREA FLOOD CONTROL AGENCY

Dear Mr. Chairman and Members of the Subcommittee:

My name is Paul Devereux, Director of Engineering of the Sacramento Area Flood Control Agency (SAFCA). I am here today representing the SAFCA Board of Directors as well as the City of Sacramento, County of Sacramento, County of Sutter, Reclamation District 1000 and the American River Flood Control District. I am also here representing over 400,000 Sacramentans who live in the floodplain of the two major rivers draining much of Northern California—the Sacramento and American Rivers. Together we are soliciting the continued

support of this Subcommittee to solve our region's most critical infrastructure problem—adequate flood protection. The recent floods which devastated many areas in Sacramento have further reinforced our vulnerability.

First of all, I would like to thank the Chairman and Subcommittee members for their past support of our efforts to protect the citizens and properties of the greater Sacramento urban area. I also urge your Subcommittee to maintain Federal support for flood control and oppose efforts by the Administration to significantly reduce the Federal role. This policy is ill conceived and short-sighted. The savings in the short term will result in greater expenditures from the Federal Treasury over time in disaster assistance and result in significant adverse impacts on the national economy. One should not measure "national significance" by the origination of flood waters; but rather their destination and impacts on the nation. The floods throughout California in January and March of 1995 have highlighted this distinction.

SAFCA supports the continued funding for the following projects:

1. **American River Project**—\$3 million for continued Pre-construction, Engineering, and Design to address the most serious flood risk to Sacramento with over 400,000 residents and \$38 billion of property in the floodplain.
2. **South Sacramento Stream Group**—\$500,000 for continued a Feasibility Study to address flood risks in South Sacramento where flooding occurred during January 1995.
3. **Magpie Creek (Section 205 Small Project)**—Continued funding for Section 205 Projects to complete Pre-Construction, Engineering and Design.
4. **Sacramento River Bank Protection**—Continued funding to study and address serious bank erosion adjacent to the American River levees through urban Sacramento.

On behalf of the Sacramento community, we urge your support in funding our efforts to solve the flood risk facing Sacramento now, rather than after we become another multi-billion dollar disaster looking to Washington for assistance.

BACKGROUND

On January 9, 1995, the rain began to fall over the greater Sacramento area. By early morning, small creeks had become raging rivers spilling over their banks into neighborhoods and homes. Within hours, many areas in Sacramento had become lakes sparking dramatic rescues, flooding major roads, closing schools and businesses, disrupting rail service, and generally sending the community into shock. Memories of the previous floods of 1986 were re-kindled in the minds of those facing the loss of their homes and belongings; for the second time in less than nine years Sacramento was experiencing flows at or above the 100-year flood elevation in many creeks. Fortunately for our region, the recent drought had depleted our major reservoirs leaving ample space to catch the runoff thereby avoiding the more serious and life threatening flooding resulting from a potential American River levee failure.

However, as the rains have continued through January and in March, our reservoirs are now full. Major flood releases, not seen since the great floods of 1986, have begun in order to maintain flood space for new storms continuing to roll in from the Pacific. Our major rivers are now flowing full, the by-pass system which is the safety valve along the Sacramento River is carrying large flows. If not for the existing flood control system, Sacramento would have been inundated by flood waters with billions of dollars in damage and potentially many lives lost.

With this scenario, it is disheartening and frightening to hear the Administration's proposal to reduce, and in Sacramento's case, eliminate Federal participation in basic flood protection. The proposed policy says the federal government will participate only in projects of national significance which is measured by how much water originates in another state. This would leave out all projects in Sacramento since our rivers originate and end within California's vast borders. Yet when the floods of 1995 rolled through our State, there was significant national interest and impacts including; 1) a Presidential visit to tour the damages; 2) multi-million dollars in federal disaster relief; 3) lost crops and flooded farm lands which will impact the nation's food market in the coming months; 4) disruption to transportation, including the interstate highway system and major rail lines carrying goods from California's port cities; and lastly, 5) the loss of innocent lives and significant property damage. Each of these impacts affect the whole nation, yet the floodwaters all originated within our State. "National significance" should not be measured by the cause of the flood but its effect.

The SAFCA Board has unanimously adopted a Resolution opposing the proposed changes in the Federal Flood Control Policy. The Sacramento community has consistently maintained an historic objective to provide a high level of flood protection commensurate with the risk to life and property in our quick reacting watershed. The Federal government has played a critical role in the establishment of the Sacramento River Flood Control System and we are urging continued support for Federal participation in that system to protect the lives and properties of this community.

Following the disaster and suffering experienced during the Midwest Floods of 1993, there are those who call for the Federal government to abandon traditional flood control efforts in favor of non-structural solutions including allowing rivers to reclaim their natural floodplain. This is a commendable recommendation and should be implemented where feasible. However, there are some areas, such as Sacramento, where such policies are infeasible and impractical. Sacramento began as a river town close to the banks of the streams which provided a source of water to live and a convenient transportation corridor. Today, the region has grown to a population in excess of one million. Of those, over one-third (400,000) live in the Sacramento and American River floodplain. Property value has been placed at \$38 billion. The floodplain includes the commercial heart of the City as well as the State Capitol Complex. To physically move a population and infrastructure of this magnitude is economically and socially infeasible. For Sacramento, we must continue to invest in flood control infrastructure to address our critical flood risk.

At this time we are testifying in support of the President's FY 1996 budget for the following flood control projects in Sacramento:

1. AMERICAN RIVER PROJECT

SAFCA supports the President's budget of \$3 million for continuation of Pre-construction, Engineering and Design (PED) on the American River Project.

When Folsom Dam was constructed along the American River in the 1950's, it was designed to provide Sacramento a very high level of flood protection (excess of 250-year protection). Over time, the level of protection provided by the reservoir and downstream levees has been continually downgraded as larger than anticipated flood events have descended on the valley. Finally, after the 1986 flood, the Corps of Engineers have determined that Sacramento has only a 63-year level of flood protection; a far cry from the high level deemed appropriate and thought obtained in 1955 and significantly less than other similarly situated major urban areas around the nation including St. Louis, Kansas City, Dallas, Omaha, Minneapolis, Portland, Pittsburgh, or Orange County.

Following Congress' decision not to authorize the American River Selected Plan in 1992, the Corps of Engineers, as directed by Congress, has been re-analyzing all alternatives for flood control along the American River. In support of the Corps, SAFCA has spent in excess

of \$1.5 million of local funds over the past two years on engineering and environmental studies to supplement the Corps efforts and has participated in the Corps' study management team to direct the complex technical and political efforts needed to reach consensus for a flood control project on the American River.

The process is on schedule for bringing the project to Congress for action as part of the 1996 Water Resources Development Act. An Alternatives Report was produced by the Corps during FY 1995. At this time, SAFCA and the State Reclamation Board have requested the Corps continue to study two alternative projects. The \$3 million budgeted for FY 1996 is essential for the Corps to produce a Supplemental Information Report and Environmental Impact Statement for the American River Project so it can be brought to Congress in 1996 for authorization. We strongly support the President's 1996 budget of \$3 million for PED on the American River Project and urge your mutual support.

2. SOUTH SACRAMENTO COUNTY STREAMS

SAFCA supports the President's budget of \$500,000 for continuation of a Feasibility Study for a flood control project on the South Sacramento County Stream Group including Morrison, Laguna, Unionhouse, and Elder Creeks.

We thank this Subcommittee's past funding support for a Reconnaissance Study on flooding problems along these major tributary streams south of the American River feeding into the Sacramento-San Joaquin Delta. The Reconnaissance Study concluded there is a significant flood risk and yielded a very cost effective flood control project. The flood danger indicated in the study was confirmed by the recent rains in January 1995. Over 300 homes in South Sacramento were flooded as the swollen creeks could not accommodate the local runoff from nearby subdivisions. The water reached to within a few feet of existing levee tops along the entire system and in some places overtopped spilling water into streets and subdivisions. Once again, worse flooding was averted because the major river systems downstream were not at flood stage, thus allowing the flood swollen creeks to drain.

The SAFCA Board has approved participation as the cost sharing, non-federal sponsor for the Feasibility Study. In addition, to address the serious public safety risk, SAFCA may also begin construction on the most critical features of the project early using local funds and request future credit should a project ultimately be authorized and construction appropriations approved.

3. MAGPIE CREEK (SECTION 205 SMALL PROJECT)

SAFCA supports the continued funding of the Section 205 Small Projects Program. The City of Sacramento and American River Flood Control District which are parent entities to SAFCA have been cost sharing in preparation of a Feasibility Study for Magpie Creek in northeastern Sacramento. A Federal flood control project was built in the 1950's because of the flooding problem. Recent hydrologic studies have shown the system to be inadequate for even a 100-year flood. The recently completed Feasibility study identified a cost effective project which can provide a high level of flood protection to properties both on McClellan Air Force Base and downstream. The recommended project includes channel improvements on McClellan Air Force Base extending westerly through the City of Sacramento. The Air Force will fund those improvements on the Base. We are anticipating Section 205 funds for construction of downstream improvements. The locals are poised to commence relocation and right-of-way acquisition to expedite the project and reduce the flood risk to their residents in the floodplain.

4. SACRAMENTO RIVER BANK PROTECTION (LOWER AMERICAN RIVER LEVEES)

SAFCA supports continued efforts by the Corps to address bank erosion which threatens the primary levees along the Sacramento River Flood Control System. In particular, several sites have been identified along the American River below Folsom Dam where continued erosion

of the banks could begin to affect the integrity of the adjacent levees as well as destroy valuable habitat. These 26 miles of levees flanking the American River Parkway through the heart of Sacramento are the difference between flood protection and catastrophe. In addition, the Parkway has become a valuable asset to our community. The natural environmental values and recreational opportunities provided by the Parkway in such close proximity to the Sacramento urban area are rarely rivaled across the nation.

SAFCA and the State of California have convened a Lower American River Task Force of interested stakeholders including flood control and resource agencies, environmental groups, business leaders and neighborhood groups to address the problem. The Task Force has succeeded in developing a planning framework within which to carry out bank protection improvements covering about 13,500 lineal feet along some of the most critical reaches of the lower American River. The bank protection would be funded under the existing authorized Sacramento River Bank Protection Project with local cost sharing by SAFCA.

SAFCA supports the continued funding of this Project so the critical sites identified by the Task Force can be fixed in a timely manner before the next major flood on the American River threatens the levee system.

Also, SAFCA appreciates the efforts of this Subcommittee in funding the efforts to date to fix the Sacramento Riverwall under the authorized Sacramento Urban Area Levee Reconstruction Project. The Corps is completing its final design and anticipates construction to commence in 1995 and be completed in 1996. This project protects portions of the downtown business district, historic structures in Old Sacramento, Interstate 5, the major north-south transportation route through California, and the State Capitol Complex.

In closing, I would like to say the Sacramento community has pulled together in a responsible manner to address our most critical infrastructure problem—flood protection. We have spent, and will continue to spend local funds to identify and implement responsible flood control projects. However, we need the support of the Federal government to achieve the long term, high level of flood protection (minimum 200-year) appropriate for a heavily populated urban area such as Sacramento with the potential for catastrophic flooding. The flood control issue in California and particularly in Sacramento is of national significance. We request the Subcommittee's continued support in recognition of our communities efforts to resolve the public safety risk. With your help, we can move one step closer to eventually meeting Sacramento's needs for flood protection.

Once again, thank you for your consideration and support.

PREPARED STATEMENT OF THE CITY OF STOCKTON, SAN JOAQUIN COUNTY, CA

Mr. Chairman and Members of the Committee:

San Joaquin County is both a County with highly productive soils devoted to a wide spectrum of agricultural crops, and a rapidly growing metropolitan area. This year the economic future of the region was placed in jeopardy by a recently completed FEMA study. The recent study of the Stockton Metropolitan area concludes that much of the region lies within the 100-year flood plain. The area at risk includes all of the downtown Stockton area and other heavily populated regions of the community. This places a large population, and several hundred million dollars of property at risk from a serious flood hazard. This is a very large problem, and we need the help of the U.S. Army Corps of Engineers to solve it.

At the other extreme, the County has a serious need of additional supplies of surface water. In the eastern portion of our County, which include the rapidly growing Stockton Metropolitan area, the groundwater resources are critically over-drafted and the basin is subject to salt water intrusion. As a result, we are losing quantities of our valuable groundwater basin each year. This condition will only worsen unless we are able to secure additional supplies of surface water. San Joaquin County has long been directed by the State and Federal planning authorities to look to the American River for this surface water supply. Other alternative water supply sources are now foreclosed to us because of our belief in promises by State and Federal authorities that the County's surface water supply would be available from the American River. Accordingly, we do

look to the American River as our primary source of additional water, and seek your support in obtaining it from projects such as the multipurpose Auburn Dam.

Unfortunately, water supply options for the County have been subjected to further attack with the enactment of the Central Valley Project Improvement Act and the operation of reservoirs for the benefit of endangered species. As an example of this, after spending over 60 million dollars and years of project planning and construction, a major water supplier to Stockton may not be able to get one drop of water for its newly completed water supply project. The project was built solely to utilize water from the New Melones Reservoir, but due to operational changes required by the Central Valley Project Improvement Act, no additional water may be available. Instead, all the water will go toward environmental purposes at the expense of communities like Stockton and agriculture. This example highlights the importance of obtaining a reliable surface water supply for the County. To this end, we are seeking assistance from the Federal government in the form of the Bureau of Reclamation projects of importance to the County.

The County of San Joaquin requests the following appropriations to be made to the Corps of Engineers and the Bureau of Reclamation for the fiscal year between October 1, 1995, and September 30, 1995, for the projects of concern to the County:

<u>Corps of Engineers - Investigations (Survey)</u>	<u>(Amount)</u>
Stockton Metropolitan Area	\$ 800,000
<u>Bureau of Reclamation - Construction Projects</u>	
Auburn-Folsom South Unit	\$2,000,000
South Delta Barriers	\$ 500,000
<u>Bureau of Reclamation - General Investigations</u>	
American River Folsom South Optimization Study	\$ 400,000

DETAILED COMMENTS

Corps of Engineers - Investigations (Survey)

Stockton Metropolitan Area	\$ 800,000
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The FEMA has recently designated most of the Stockton Metropolitan Area to be within the 100-year flood plain. Several hundred thousand people and several hundred million dollars of property are at risk from devastating floods from the Calaveras River and numerous sloughs and creeks. Most of our levees do not have sufficient freeboard to safely pass the 100-year flood. As you know, even 100-year protection is very low for a large metropolitan area such as Stockton, and now we even lack that. Although we are doing what we can at the local level, we need assistance from the U.S. Army Corps of Engineers to correct the problem. The project is just too big for us to handle. Although we have entered into an agreement with the City of Stockton to attempt to correct the situation, it has become apparent that help from the Corps will be required. We are requesting that Congress add \$800,000 and a line item to the Corp's budget to allow them to conduct a reconnaissance study to examine the problem. If the flooding problem cannot be alleviated, the economic impact to the region will be devastating. All development will be seriously impacted and our already depressed economy will worsen.

Included in the Stockton Metropolitan area work, the Corps can also conduct a reconnaissance level study to confirm that the Farmington dam can be modified to accommodate these uses and investigate its potential as a component of the flood protection plan.

Bureau of Reclamation - Construction Projects

Auburn-Folsom South Unit

\$ 2,000,000

San Joaquin County strongly supports this important project. This study is on schedule to present Congress with the virtues of a multipurpose Auburn Dam. The study is expected to be completed in 1996, at the same time the Corps' inferior "dry dam" American River flood control study is completed. The County opposes any Corps project which precludes construction of a multipurpose dam at Auburn. The dam site is simply too valuable to be wasted on a project that does not include water supply and other benefits.

San Joaquin County is concerned that the Corps' Auburn area project is not addressing the water needs of the County or other parts of the State as was intended by the original project. There is no question that a multipurpose dam at Auburn would have greatly lessened the effects of the recent drought on fish and wildlife resources and the people of California, as well as provided much needed flood protection to the Sacramento area. Preliminary data completed by the Bureau identified an annual shortfall of water for the study area of nearly 600,000 acre feet in the year 2030, even with water conservation. This is particularly disturbing, since these bleak figures have not taken into account Central Valley Project water required to be set aside for environmental purposes under the Central Valley Project Improvement Act, additional demands for wildlife refuges, or operational restrictions due to endangered species.

The people deserve to have the Bureau study a multipurpose dam at Auburn up to the Principles and Guidelines standards, and to produce a new NEPA document, before this option may be foreclosed upon them by the Corps dry dam. This study will accomplish this. The Non-Federal cost sharing partners, including San Joaquin County, continue to fund their share of this important investigation. This will allow you and your colleagues to consider the Bureau's multipurpose study, the Corps' flood control only study, and any other American River studies such as BLM's recreation study and any Wild and Scenic River proposals at the same time. We are convinced that the multipurpose Auburn project will emerge as the best project for the American people.

South Delta Barriers

\$ 500,000

This project offers significant water quality benefits to the Sacramento-San Joaquin Delta. It would allow the Bureau to cost share with the South Delta Water Agency and the State Department of Water Resources in the design, construction and operation of salinity barrier facilities in certain South Delta channels. San Joaquin County supports this project in the Fiscal Year 1996 budget.

The budget item would allow the Bureau to continue to fund its fair share along with that of the other partners. To date, the United States Bureau of Reclamation's share of costs should have been approximately \$5,500,000; of this, the Bureau of Reclamation has spent only \$240,000. In addition, it would formally bring to an end litigation brought against the Bureau by the South Delta Water Agency, for violations of water quality standards.

Bureau of Reclamation - General Investigations

American River/Folsom South- Optimization Study

\$ 400,000

This study is also very important to San Joaquin County. It may provide an opportunity to gain additional urgently needed water for the County. The study is evaluating plans for concurrent surface and groundwater use from existing storage developments and tributary streams to meet the area's water needs and provide suitable instream flows for fishery and recreation purposes. Unfortunately, the project has been delayed, primarily because of Bay-Delta negotiations. The outcome of those negotiations were critical in continuing this project, water supply impacts were discussed. Because of the delay, the President's Budget does not include funding for continuation of this study. An add-on of funds would allow the Bureau to complete this important study. The study has gone far enough that it needs to be completed, or valuable information will be lost. In addition, the add-on could be used to examine the water supply aspects of Farmington Reservoir, as a companion to the Corps' study of physical dam modifications. The Central Valley Project Improvement Act and Endangered Species Act have severely impacted the water supply to our County. The example of the newly constructed, multimillion dollar project constructed by one of our County's primary water suppliers being rendered virtually useless by these Federal laws. The recent Bay-Delta agreement has not helped the situation. All of the water available for water supply in New Melones Reservoir is now being used to meet endangered species and water quality needs. Despite being paid for by people, including San Joaquin County citizens, none of the water is available for people. The Farmington Dam investigation we support may help to lessen the impact of the existing situation. The unusable water supply project previously mentioned passes right through the Corps' Farmington Project. Farmington is currently used solely for flood control purposes, but we think it can do more. We believe modifications to Farmington Dam to store water may yield water supply and environmental benefits. This project has the added benefit that a dam already exists. Therefore, San Joaquin County requests that an add-on in the amount of \$400,000 be approved.

Mr. Chairman and Members of the Committee:

The City of Stockton is in San Joaquin County, California. Our representatives are here to bring your attention to several projects of importance to the City and the County. Attached is a more detailed recitation of our concerns. However, the City Council did think it was important enough for our representatives to come 2,500 miles to present testimony to you on the proposed Stockton Metropolitan Area Project.

The Federal Emergency Management Agency (FEMA) recently completed a study of our region. The study results spell economic disaster for the region unless we can quickly design and construct a flood remediation project. Most of the Stockton Metropolitan area will be within the 100-year floodplain when FEMA issues new floodplain maps early next year. The area at risk includes most of the City of Stockton including all of the downtown area. Now, over

300,000 people live within the 100-year flood plain. In addition, 95,000 properties worth several hundred million dollars are also at risk from this flood hazard.

FEMA has released preliminary Flood Insurance Rate Maps that show flooding of the community from 8 waterways. The FEMA study concluded that the levees along these channels do not have adequate freeboard to provide a 100-year level of protection.

The projected flood hazard in a major metropolitan area such as Stockton greatly concerns us. Considering the vast number of properties at possible risk in the Stockton Metropolitan region, you can visualize why community leaders are greatly concerned for our residents. The cost of such a disaster in both human and monetary costs would be enormous. Since the Federal government usually contributes heavily to disaster assistance, prevention of such a disaster is clearly within the Federal interest. That is why we are seeking assistance from the Corps.

The U.S. Army Corps of Engineers are the premier flood control experts in the country. So much so that expertise at the local government level is often limited to reliance on the Corps. We do not want you to have the impression that the City and County are not doing anything at the local level. Far from it. Rest assured that the local government agencies are doing what they can to alleviate the problem. The County, the San Joaquin County Flood Control and Conservation District, and the City of Stockton, have entered into a joint agreement to address the flooding issue to the extent possible. The City and County Public Works staff has begun identifying improvements necessary to give the community 100-year flood protection. However, due to the magnitude of the problem and the expertise of the Corps, we are seeking their help in alleviating this dangerous situation.

We cannot afford to wait. Therefore, we are asking Congress to appropriate \$800,000 in the Fiscal Year 1996 Budget to allow the Corps to conduct a reconnaissance study of the Stockton Metropolitan Area. The Corps has the capability of initiating this

project during FY 1996, and the sooner we get it going the sooner we can lower the risk of flooding to our residents. The City of Stockton and San Joaquin County are prepared to participate in the cost of a Federal flood control project during future stages of the project.

While the funds requested in the Corps' budget for a reconnaissance study can also be used to study the potential benefit of adding the Farmington Dam as a component of Stockton's flood protection plans, priority should be given to the immediate improvements necessary in the Stockton Metropolitan area.

Mr. Chairman and Members of the Committee:

The City of Stockton supports the following Corps of Engineers and Bureau of Reclamation water, flood control and fishery projects:

1. Stockton Metropolitan Area Study (Proposed new project) and Farmington Dam Evaluation	\$ 800,000
2. Sacramento/San Joaquin Delta Investigation	\$ 800,000
3. American River Watershed	\$ 3,000,000
4. Auburn-Folsom South Unit	\$ 2,000,000
5. South Delta Barriers	\$ 500,000
6. American River Folsom South Optimization Study	\$ 400,000

U.S. CORPS OF ENGINEERS

STOCKTON METROPOLITAN AREA STUDY AND FARMINGTON DAM EVALUATION \$ 800,000

The Stockton Metropolitan Area Study is a proposed new project. The Federal Emergency Management Agency (FEMA) has recently completed a study of the Stockton Metropolitan area. The study concludes that much of the Stockton Metropolitan area does not have protection from a 100-year flood. The affected area includes all of downtown Stockton and the most heavily populated areas of the community. The proposed study would be a General Investigation Survey (Reconnaissance Report) which would take between one and one and one-half years to complete.

Farmington Dam is an existing Corps of Engineers flood control project in San Joaquin and Stanislaus Counties. It is normally dry, but controls flows from the Little John Creek stream group during flood events. The dam has some seepage problems. Assuming the seepage problem can be eliminated, Farmington shows some promise of being able to provide water to Stockton East Water District from its Stanislaus River Project with minimal additional infrastructure.

SACRAMENTO-SAN JOAQUIN DELTA INVESTIGATION \$ 800,000

This important investigation is being conducted jointly with the California Department of Water Resources. The study will examine alternatives to improve flood control, water supply and environmental concerns such as riparian vegetation and water quality in the Delta. This study is of paramount importance in regard to current and future California Water needs.

AMERICAN RIVER WATERSHED

\$ 3,000,000

At the direction of Congress, studies have been conducted to evaluate expandability and gating aspects of Auburn Dam; re-evaluate other methods of flood control including levee improvements, and study coordinated operational procedures in order to determine if Folsom can be operated differently to provide additional flood protection to Sacramento; and develop criteria to increase the available flood control space in Folsom in conjunction with the Bureau and local interests. The Corps was also specifically directed to study the potential for a reservoir at Deer Creek south of Folsom. This is of particular interest to San Joaquin County as it offers a potential water supply source from the Folsom South Canal.

BUREAU OF RECLAMATION

AUBURN-FOLSOM SOUTH UNIT

\$2,000,000

This project is funded only for maintenance of lands acquired for the Auburn Dam and for miscellaneous personnel support. The City of Stockton is concerned that the project is not addressing the water needs of this area as originally intended. The Bureau should be directed to consider the extension of the Folsom South Canal and the provision for water supply for San Joaquin County. We also recommend that the study include the evaluation of various sized multipurpose projects at the Auburn site. To this end, the City requests that the budget be increased from \$2,137,000 to \$2,182,000 to support these additional investigations.

SOUTH DELTA BARRIERS

\$ 500,000

Last year the California Water Commission supported a funding add-on request to allow the Bureau to participate with the State in constructing a barrier to improve water quality in the South Delta. The request came from the South Delta Water Agency and was supported by the City. The City continues its support of this project.

AMERICAN RIVER/FOLSOM SOUTH OPTIMIZATION STUDY

\$ 400,000

This study could provide an opportunity to gain additional water for the City's watershed. The study will evaluate plans for concurrent surface and groundwater use from existing storage developments and tributary streams to meet Folsom South Area water needs and provide suitable instream flows for fishery and recreation purposes in the lower American River.

I, FRANCES HONG, do hereby certify as follows:

I am the duly appointed, qualified City Clerk of the City of Stockton, a California municipal corporation; as such City Clerk, I am the custodian of the official records of the City Council of said City. The attached Resolution is a full, true and correct copy of Resolution No. 95-0091 of said City Council, which was adopted by the City Council, on March 6, 1995.

IN WITNESS WHEREOF, I have hereto affixed my hand and the seal of the City of Stockton on March 7, 1995.

FRANCES HONG, CITY CLERK
CITY OF STOCKTON

By *Vivian Black*
Deputy

STOCKTON CITY COUNCIL

WHEREAS, on March 28, and 29, 1995, appropriate committees of the Congress of the United States will conduct hearings to consider federal appropriations for water, flood control, and fishery projects for Fiscal Year 1996; and

WHEREAS, several projects to be considered at said Congressional hearings will directly impact the City of Stockton and its environs; and

WHEREAS, the expeditious construction of said projects is required to protect the health, welfare and safety of the residents of this area; now, therefore,

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF STOCKTON AS FOLLOWS:

1. That the City of Stockton does hereby support the appropriation by the Congress of the United States of funds for Fiscal Year 1996 for the planning, continuation and completion of flood control and reclamation projects, namely:
 - a. Stockton Metropolitan Area Study and Farmington Dam Evaluation
 - b. Sacramento-San Joaquin Delta Investigation
 - c. American River Watershed
 - d. Auburn-Folsom South Unit
 - e. South Delta Barriers
 - f. American River/Folsom South Optimization Study
2. That the "Statement by the City of Stockton, California, Before the Committee on Appropriations, Subcommittee on Energy and Water Development of the U. S. Senate"; and the "Statement by the City of Stockton, California Before the Committee on Appropriations Subcommittee on Energy and Water Development of the U. S. House of Representatives" ("STATEMENTS"), are hereby approved as the official STATEMENTS of the City Council. Copies of

said documents are attached as Exhibits "A" and "B" respectively, and incorporated by this reference.

3. That the Mayor is hereby directed to forward copies of said STATEMENTS to the appropriate Congressional Committees and to the City of Stockton's representatives in the Senate and House of Representatives, and the City Manager will monitor and initiate proper follow-up communication and correspondence to reflect the City Council's position.

PASSED, APPROVED and ADOPTED MAR -6 1995

/S/ JOAN DARRAH

JOAN DARRAH, Mayor
of the City of Stockton

ATTEST:

/s/ FRANCES HONG

FRANCES HONG, City Clerk
of the City of Stockton

PREPARED STATEMENT OF EDWARD M. STEFFANI, GENERAL MANAGER,
STOCKTON EAST WATER DISTRICT

SUMMARY

I am Ed Steffani. I serve as the General Manager of the Stockton East Water District that serves over 300,000 people and provides water to 65,000 acres of irrigated farmland. The District was formed to solve the serious environmental problems of groundwater overdraft and saltwater intrusion in the Stockton area. We built a \$23 million treatment plant to reduce these problems by supplying treated surface water. In 1983 we entered into a contract with the Bureau of Reclamation for deliveries of Central Valley Project water from New Melones Reservoir on the Stanislaus River. We joined with the City of Stockton, the County of San Joaquin, and our neighboring water district to provide \$65 million to build a conveyance facility. We requested water from the Bureau in 1993, 1994 and again in 1995 and have not received the first drop.

We still face ever increasing problems associated with groundwater overdraft and saltwater intrusion. We need a reliable supply of surface water to combat these problems. Your Committee provided \$400,000 for Fiscal Year 1995 for the American River Folsom South Optimization Study. This study is needed to determine the feasibility of wet year storage at South Gulch or Farmington Dam for flood control and conjunctive use. However, we were told by the Bureau of Reclamation that they are not doing the study or spending the funds. We hope that you will again fund this study and direct the Bureau to get it underway.

We join with the City of Stockton in support of a Stockton Metropolitan Area Study for flood control by the Army Corps of Engineers. This \$800,000 provides a way to effectively and efficiently manage the water resource while protecting lives and property. A study of the Corps' Farmington Dam will help determine if it feasible to use this facility for wet year storage.

Thank you for your Committee's attention to our problems in the past. I am sure that with your Committee's continued support, we will be able to find, with local level and Federal participation, a reliable water supply for the Stockton area in the future.

TESTIMONY OF EDWARD M. STEFFANI

General Manager, Stockton East Water District

My name is Ed Steffani. I serve as the General Manager of the Stockton East Water District in Stockton, California. I am pleased to have the opportunity to testify before this committee concerning Federal funds for projects that are extremely important for our water supply and critical to the long-term survival of our community.

Our efforts to obtain a reliable surface water supply for Stockton and San Joaquin County have faced considerable obstacles. The District joined with our neighbor, the Central San Joaquin Water Conservation District, and with the City of Stockton and the County of San Joaquin to build a conveyance facility for water deliveries from the New Melones Reservoir on the Stanislaus River.

The Districts and local governments provided \$65 million in local funds to build a system in reliance on contracts with the U.S. Bureau of Reclamation. These contracts provide for the delivery of much-needed water from the Federal Central Valley Project. We requested deliveries in 1993, 1994 and again in 1995. However, we have not received the first drop of water.

A reliable water supply is absolutely essential to correct the saltwater intrusion and groundwater overdraft problems of our area. The Stockton East Water District was established under California law to implement solutions to these serious environmental problems. The District built a \$23 million treatment plant to reduce the overdraft on groundwater by supplying treated surface water. The District provides water for both agricultural and municipal purposes, serving approximately 115,000 acres, 65,000 acres of irrigated farm land, and over 300,000 people.

We continue to seek solutions to groundwater overdraft and saltwater intrusion. However, we are faced with alternatives that include Federal involvement and the wise management of Federally-controlled resources. We believe there are cost-effective approaches that will make surface water available to be conjunctively managed with the existing groundwater resources in the Stockton area.

Your Committee has been consistent in its support of our efforts. You provided \$400,000 in your Fiscal Year 1995 appropriations for the American River Folsom South Optimization Study. We were pleased that the Congress acted to get the Bureau of Reclamation to take a look at this conjunctive use option. However, the Bureau told us by letter that they are not going to do this study and these funds have not been spent for this purpose.

The American River Folsom South Optimization Study still needs to be done to determine the feasibility of wet year storage at South Gulch or Farmington Dam. Responsible management of the water resource needs to include flood control and

conjunctive use. This environmentally friendly approach could enhance flood control while providing water to combat saltwater intrusion in the Stockton area.

I join with our Congressman, Richard Pombo, and with the California Water Commission in support of your funding of the American River Folsom South Optimization Study. We hope that you will direct the Bureau of Reclamation to begin this study.

We join with the City of Stockton, along with Congressman Pombo and the California Water Commission, in support of \$800,000 for a Stockton Metropolitan Area Study for flood control by the U.S. Army Corps of Engineers. Successful management and stewardship of the water resource can provide solutions to our water supply problems. The Corps operates Farmington Dam that has the potential of conservation storage of up to 160,000 acre feet. However, a study is needed to determine the seepage and whether it is feasible to raise the level of this dam. This conjunctive use should be examined as part of the flood control strategy of the Corps.

We hope that this Committee will act favorably to help the people of the Stockton area help themselves in solving our long-term water problems. Funding these studies is a necessary step in the right direction of bringing about a local-Federal partnership to meet these needs.

PREPARED STATEMENT OF ROSS ROGERS, GENERAL MANAGER, MERCED
IRRIGATION DISTRICT

Mr. Chairman and Members of the Committee:

My name is Ross Rogers of Merced, California. I am representing the Merced County Board of Supervisors, which, together with the State of California, is the sponsor of the Merced County Streams Project. The County is joined by the Merced Irrigation District, the City of Merced, the El Nido Irrigation District and the LeGrand Athlone Water District.

Federal authorization for the project construction was granted as part of the Supplemental Appropriations Act of 1985. Authorized project facilities include constructing dry dams on Canal (Castle Dam) and Black Rascal Creeks (Haystack Mt. Dam), enlargement of the existing Bear Creek Dam, and modification of levees and channels along more than 25 miles of Fahrens, Black Rascal, Cottonwood, and Bear Creeks. The completed project will provide flood protection worth more than \$10,000,000 per year to 263,000 acres of urban and agricultural lands. Total project cost is currently estimated to be \$124,500,000, of which \$38,600,000, or roughly 31%, will be paid during construction by the local beneficiaries.

When completed, more than 240,000 residents occupying 55,000 housing units within the greater metropolitan Merced area will live with assurance of 125-year flood protection, while the lower rural area will receive 25-year protection.

The first component of the project, Castle Dam, was completed in 1992, and a check structure in the Merced Irrigation District main canal was completed in 1994. This component was constructed under budget, ahead of schedule, and without a lost-time accident. Without Castle Dam during the intense storms of January and March 1995, the city of Merced would have been partially inundated. We look forward to the transfer of operational responsibility within the next year.

As a result of a request by the County of Merced, the Corps of Engineers has reevaluated project components and will extend the boundaries of the levee and channel portion of the project to better match growth that has taken place in the city of Merced. This willingness to remain flexible throughout the lengthy planning and design process is also a credit to the Corps and its staff.

The Merced County Streams Project is a modification and expansion of an earlier flood control project constructed between 1948 and 1957. It has undergone considerable review and modification since first authorized as part of the Flood Control Act of 1970. Approximately \$15,000,000 has been spent to date on the Merced County Streams Project. This has been matched by local contributions of approximately \$3,000,000. As partners in financing the construction of this project, we have worked closely with the Corps to establish an economic balance between costs and benefits. As a result of this combined effort, nonessential project components were first scaled back and eventually eliminated. This scaling to fit the economic reality resulted in substantial federal and local savings.

In January of 1993, and also in January and March of 1995, Merced County received rains of heavy intensity. Considerable flooding occurred within the project area. Bear Creek overflowed its banks one mile southwest of Merced, and broke its banks approximately four miles southwest of Merced. Mariposa and Miles Creeks overflowed their banks in various areas southeast of Merced. Quick action by maintenance crews from the Merced Irrigation District, assisted by airmen from

Castle Air Force Base, working around the clock for two days and nights, averted a major disaster in 1993. Castle Air Force Base will be closed later this year, and help from this source will no longer be available.

The project has the support of state and local authorities and funding of the non-federal portion has been addressed.

We request your Committee's support for inclusion of \$699,000 in the FY 95/96 budget as recommended by the California Water Commission, the Corps of Engineers, and the President's budget. The allocation of this amount will allow for orderly progress of the Merced County Streams Project, which is so vital to the community, state and the nation.

PREPARED STATEMENT OF JAMES CROOK, MANAGER, KAWEAH DELTA
WATER CONSERVATION DISTRICT

Mr. Chairman and Members of the Subcommittee:

My name is James Crook, and I am the Manager of the Kaweah Delta Water Conservation District in the eastern San Joaquin Valley of California. Thank you for the opportunity to present testimony regarding the Fiscal 1996 budget for the U.S. Army Corps of Engineers.

The Conservation District respectfully requests that Congress provide \$300,000 in the Corps' FY 1996 budget for preconstruction engineering and design of a project to increase the water storage and flood control capacities of Terminus Reservoir at Lake Kaweah, California.

The request is strongly supported by the California Water Commission and by Representatives George Radanovich and Cal Dooley.

The Conservation District was formed in 1927 to conserve and protect the surface and groundwater of the Kaweah delta. The District serves 337,000 acres, which include the cities of

Visalia and Tulare and several unincorporated areas in Kings and Tulare counties. Those two counties consistently rank among the most productive agriculture counties in the nation.

Terminus Reservoir, located on the Kaweah River three and one-half miles east of the District, was completed in 1962 by the U.S. Army Corps of Engineers. The purpose of the project is to provide flood protection on the Kaweah River and river control for irrigation purposes. The Conservation District manages the irrigation and flood control releases for the reservoir, as well as conjunctive use of the surface and groundwater of the Kaweah.

Rapid growth in the region has created a need for better flood protection and more water storage. In 1988, the Corps began a feasibility study for a project to enlarge Terminus Reservoir. The project would add approximately 43,000 acre-feet of flood control and conservation storage space to Lake Kaweah. The feasibility study, which now has an estimated cost of \$3 million, is nearly complete and has determined that the enlargement project has a positive benefit-to-cost ratio.

Despite the merits of the project, the Corps has not included funding for the next phase, preconstruction engineering and design, in its FY 1996 budget request. Apparently this is because of the Corps' new policy of not pursuing single-state flood control projects.

We believe that policy is very short-sighted and breaks faith with the state and local authorities that have invested a decade of effort and a large amount of scarce local funds in working with the Corps to enlarge Terminus Reservoir.

To date, local authorities, including Kings and Tulare counties, the City of Visalia and the Kaweah Delta Water

Conservation District, have contributed more than \$1.4 million to the cost of the feasibility study. The original cost-sharing agreement signed by the Corps in 1988 was for a local contribution of only \$800,000. The Corps has increased the total cost of the feasibility study three times since 1988, nearly doubling the original estimate of \$1.6 million.

The Conservation District and other local authorities reluctantly agreed to share the cost increases because the Corps said that was the only way to continue the project, which the Corps now suddenly wants to terminate.

California's growing population will place ever increasing demands on its water supply. Improving existing facilities such as Terminus Reservoir is one of the most economical and environmentally sensitive ways to meet those new demands. It is important for Congress to encourage such projects, and we respectfully request that you provide the funding necessary to continue work to enlarge Terminus Reservoir at Lake Kaweah.

Thank you.

PREPARED STATEMENT OF RICHARD L. SCHAFER, SECRETARY,
WATERMASTER TULE RIVER ASSOCIATION

Mr. Chairman, and members of the Committee,

My name is Dick Schafer, I serve as Secretary of the Tule River Association and Watermaster of the Tule River. I am appearing in support of appropriations for the U. S. Army Corps of Engineers for the completion of funding of the seismic studies of Success Dam and for the continuation of funding of the feasibility study for the enlargement of Success Reservoir, Tule River, California.

The President's FY96 budget includes \$700,000 for completion of the seismic studies of Success Dam. These funds are needed to cover costs for additional in situ exploration work at the dam site and for further deformation and static parametric analyses using state-of-the-art computer modeling.

In addition, upon direction of the Chief, USACE, the Corps is now proceeding with the completion of the feasibility study for the enlargement of Success Reservoir and funding of \$200,000 is needed for Corps General Investigations, San Joaquin River Basin, Tule River, California.

The Tule River Association requests that the Committee support the President's budget of \$700,000 for the completion of the Success Dam seismic studies and the inclusion of \$200,000 for the continuation of the Success Reservoir Enlargement Feasibility Study, Tule River, California, in the 1996 Appropriations Bill.

Success Dam and Reservoir Project, Tule River, California

1. Project Authorization.

Success Dam and Reservoir was authorized for construction by the Flood Control Act of 1944 (Public Law 534, 22 December 1944, Seventy-Eighth Congress, Second Session).

2. Project Description.

Success Dam and Reservoir, a flood control and water conservation project, is located on the Tule River, about 6 miles east and upstream of the City of Porterville, Tulare County, California. The dam was completed 20 January 1961 with a total cost for the project of \$14,247,000.

The main dam is a rolled earthfill structure 145 feet high and 3,404 feet long constructed with a central impervious core from the top of dam to the older alluvium. The top elevation of the dam is 691.5 feet and gross pool elevation, crest of spillway, is 652.5 providing 39 feet of freeboard. Success Reservoir gross pool capacity with current sedimentation is 82,300 acre-feet.

3. Seismic Studies.

Previous detailed studies related to the seismic stability of Success Dam include the following:

- Seismic Criteria, Success Dam, Porterville, Tulare County, California (David J. Leeds, September 1980, for the U. S. Army Corps of Engineers, Sacramento District, under contract DACW05-80-P-1078).
- Dynamic Analysis of Success Dam, Success Reservoir, Tule River, California (U.S. Army Corps of Engineers, Sacramento District, June 1983).
- Geologic and Seismologic Investigation, Success and Terminus Dams, Lake Success and Lake Kaweah, Tule and Kaweah Rivers, California (U.S. Army Corps of Engineers, Sacramento District, July 1988).

In review of the 1983 dynamic analysis report by the Corps, as requested by the Tule River Association, it was noted that the uncertainty of deformation of Success Dam was high and the margin

of safety believed small which prompted a Technical Review Conference (TRC) on 17 June 1992.

The TRC participants agreed that recent technical advances allow a much better understanding of the seismic response of alluvial soils, present in the foundation of Success Dam, than were available for the 1983 study, and further seismic studies should be conducted.

- A Post-Earthquake Slope Stability Evaluation of Success Dam, Tule River, California was prepared by the U. S. Army Engineers Waterways Experiment Station (CEWES) in June, 1993.

The CEWES report concluded that if the recent alluvium soils of the Tule River channel liquify there would be massive damage that would threaten the integrity of the embankment and extensive slumping of the upstream and downstream (shell) faces of the reservoir could occur. However, if the recent alluvium soils do not liquify and significant excess pore pressures do not develop, then post-earthquake sliding would not occur and the existing dam will likely be safe. The CEWES report stated that the existing field test data was insufficient to demonstrate whether liquification will occur in the foundation soils of Success Dam.

Based on the recommendation of CEWES, in situ testing of the recent alluvium and the foundation soils of Success Dam were conducted under contract of the Corps in early 1994 to obtain crosshole shear wave velocity measurements and Becker Hammer Penetration Tests for evaluation of liquefaction potential of the foundation soils of Success Dam.

- As directed by the congress, the Corps reported to the Subcommittee on Energy and Water Development, Committee on Appropriations by letter dated 18 July 1994. The Information Paper on Current Seismic Studies, Success Dam, Tule River, California stated the results of the Becker Hammer Penetration Testing....

"suggests that there are isolated lenses of material within the dam and foundation that will either liquify or lose strength under earthquake loading, with resulting deformation of the embankment."

The Paper further stated:

..."the presence of liquefaction alone is not considered to result in dam failure. The overall performance of the dam must be examined since the safety of the dam cannot be conclusively evaluated at this time. However, the isolated nature of the weak lenses of material make it difficult to predict the overall performance of the dam. Thus, based on the existing data and preliminary analysis available, further study using deformation analysis have been initiated."

"Deformation analysis is a state-of-the-art computer method that estimates earthquake-induced deformations by performing non-linear dynamic effective stress analysis with pore water pressure, strain, and flow deformation response taken into account. In order to

complete deformation analysis, significant amounts of site investigation and laboratory testing are required to determine how the soil materials present at Success Dam behave under earthquake loadings."

Due to the requirement of further in situ exploration work at Success Dam in 1995 and as a result of the costs of the extensive and extremely complex state-of-the-art computer modeling required for the seismic studies, the President's 1996 budget includes \$700,000 for the Corps completion of seismic studies of Success Dam, Tule River, California.

The Corps has scheduled completion of the seismic studies of Success Dam in 1996

General Stanley G. Genega stated in his letter of July 18, 1994 to the Congress:

"Based on information obtained from the initial explorations, the Corps estimates that the remaining studies can be completed in May 1996."

4. Feasibility Study

(a.) Purpose

The Purpose of the Tule River Basin Investigation, Success Reservoir Enlargement Project is to improve flood control and water conservation of Tule River flows for the urban area of the City of Porterville and for the downstream agricultural lands within Tulare and Kings Counties, California.

The Success Reservoir Enlargement Project involves the simple raising of the Reservoir spillway 10-feet. Currently there is 39-feet of freeboard from the crest of the spillway to the top of the dam. By raising the spillway 10-feet the storage capacity of Success Reservoir is increased 28,000 acre-feet (82,000 a.f. to 110,000 a.f.) and the flood protection is nearly doubled by providing flood control of a storm event occurring once in 100-years instead of once in 55-years as presently exists.

The Tule River floods of 1966 and 1969, subsequent to completion of Success Dam and Reservoir in 1961, caused estimated damages of \$5,000,000 downstream of the Dam with additional flood damages in the Tulare Lakebed in years 1978, 1980, 1982 and 1983.

(b.) Study Area

The study area covers portions of Tulare and Kings Counties, California below Success Reservoir, Tule River containing a gross area of 324,000 acres. Of the gross area 239,900 acres are developed for the production of numerous agricultural crops with the remaining area in urban and non-agricultural uses.

The highly diversification of crops grown in the service area creates gross revenues in excess of \$200-million per year.

(c.) Project Feasibility Study

The Tule River Basin Investigation California, Interim Report, prepared by the Corps under the 1988 Feasibility Cost Sharing

Agreement (FCSA) was completed in March 1992 and submitted to Washington in June 1992.

The flood control and water conservation project costs, as estimated by the Corps, are \$13.5 million including \$3.9 million for mitigation of environmental impacts, however with the inclusion of an upstream toe berm for additional seismic protection, as conditioned by the Corps, project costs are increased \$9.6 million reducing the benefit to cost ratio from 1.4:1 to 0.9:1. Clearly, without inclusion of costs for seismic correction, there is satisfactory feasibility for federal participation.

Although further work on the Success Reservoir Enlargement Feasibility Study was placed on hold in 1992 for updating the seismic studies of Success Dam, after a meeting with General Williams, Chief USACE, and members of congress on August 16, 1994 and a subsequent meeting with District and SPD Corps Staff on October 17, 1994, the Corps agreed to proceed in calendar year 1995 and FY 1996 under an amendment of the 1988 FCSA with updating and completion of the various tasks of the feasibility study.

A meeting between the local sponsor and the District Corps Staff respecting an amendment of the FCSA was conducted on January 12 and 13, 1995. During that meeting the Corps District staff agreed to obtain clarification of the need for the extensive rewrite of the 1992 Interim Report and particularly the need for risk-based analysis, reformulation of alternative plans of enlargement for selection of a NED plan, additional detailed economic studies, MCACES cost estimate and determination of the environmental impacts downstream of the reservoir.

(d) Funding

It is anticipated that preparation of the amended FCSA will cost approximately \$500,000, and although the Corps has agreed to proceed in FY 1995 using other funds, the 1996 budget needs an allocation of \$200,000 for the continuation of the Success Reservoir Enlargement Feasibility Study. As stated in General Genega's letter of October 3, 1994, by proceeding in 1995 with the completion of the feasibility study, project authorization could be scheduled in WRDA 1998.

5. Appropriations Committee

The Tule River Association requests that the Subcommittee on Energy and Water support the President's budget of \$700,000 for completion of the Success Dam seismic studies and the inclusion of \$200,000 for continuation of the Success Reservoir Enlargement Feasibility Study, Tule River, California in the 1996 Appropriations Bill.

PREPARED STATEMENT OF MARY K. SHELL, SUPERVISOR, FIFTH DISTRICT
IN KERN COUNTY, CA

Dear Mr. Chairman and Members of this Subcommittee:

I am Mary K. Shell, Supervisor of the Fifth District in Kern County, California. I am here today on behalf of the Kern County Board of Supervisors, Kern County Water Agency, Lamont Storm Water District and the City of Arvin to support the President's proposed FY-96 budget allocation of \$171,000 to continue the Caliente Creek Flood Control Study.

The Caliente Stream Group has had eight major flood events since 1932. They have inundated homes, businesses, farmlands and transportation systems and caused in excess of \$80 million in damage.

After the last serious flood in 1983, Kern County entered into a feasibility cost sharing study in 1985. Our county was one of the first in the nation to sign a federal cost-sharing agreement for feasibility studies (known as WDRA 1986). When the initial study indicated the project planned would not meet a cost/benefit analysis, a second feasibility study was initiated in 1992.

Some \$3 million of a \$4.1 million study have been expended so far. Our local taxpayers have contributed about \$800,000 of this amount ---- nearly a third.

We are now in the tenth year of study and with your continued support for funding we will be able to complete the study phase in the next couple of years. Then, if found to be feasible, construction of the project can provide a sense of security to the people of Lamont and Arvin, a majority of whom are farm workers.

However, I would like to express real concern over a U.S. Corps of Engineers budget proposal that could forever doom this project. I'm referring to the new set of financial standards proposed by the Corps for flood control projects. A project like ours absolutely couldn't qualify for assistance under the Corps' suggested requirements that a flood control project:

- Be "nationally significant;"
- Protect only those areas where half the flood waters have crossed state boundaries;
- Provide significant contributions to the national economy;
and
- Provide \$2 in benefits for every \$1 invested.

In addition, the local cost share would be 75%, instead of the current local match of 25%, if we did qualify.

Instead of retreating from local projects, we strongly believe the Corps of Engineers should continue as our nation's primary flood

prevention resource. Just a few months ago, a joint partnership agreement was signed by the Corps and the National Association of Flood Storm Management Agencies following a series of Corps workshops aimed at seeking more efficiency in assisting local interests in the civil works process.

It would appear the proposed standards contradict this recent commitment.

We urge the Subcommittee to take a strong position to maintain the Corps of Engineers as our nation's primary flood prevention resource.

Our Kern County Board of Supervisors, Kern County Water Agency, City of Arvin and Lamont Storm Water District were on the cutting edge in forming the cost-sharing partnership with the federal government for the Caliente Creek project and we stand ready to continue that partnership to accomplish our goal of protecting our people from devastating floods.

I appreciate your time and attention.

PREPARED STATEMENT OF PAUL BATTISTI, SUPERVISOR, NAPA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

SUMMARY

This statement is in support of continued funding for the Corps of Engineers' Napa River, California Flood Control Project, located in the City of Napa, California. The local sponsoring agency is the Napa County Flood Control and Water Conservation District. The City of Napa is the recreation sponsor.

The subcommittee is asked to support a federal budgetary appropriation of \$787,000 for this project in Fiscal Year 1996, and is included in the President's 1996 budget. This amount is also recommended by the California Water Commission.

The requested appropriation would continue a six year partnership between the Corps of Engineers and local sponsors. To date about \$9.5 million in federal funds and \$5.3 million in local resources have been expended.

The purpose of the FY 1996 appropriation is to complete preconstruction engineering and design.

This project was authorized by the Flood Control Act of 1965. The estimated total cost is \$130 million. The present schedule would begin construction by Spring 1997 with completion estimated in 2004.

BACKGROUND

The Napa River is the main waterway into which all tributaries of the Napa River flow. The river reaches its highest flow and the main point of concentration of storm water in the heart of downtown City of Napa. The river basin covers 426 square miles, ranging from marshes to mountainous terrain.

The original town of Napa was established in 1848, at the head of the navigable Napa River channel, from San Francisco Bay. It was the future city's only means of transportation and commerce until railroad service was introduced in 1902.

The river has damaged the City of Napa twelve times in the past 50 years. The most damaging floods of record occurred in 1955, 1958, 1963, 1965, 1986 (flood of record), 1993 and 1995 (January and March). Damage in the 1986 flood amounted to \$124 million, loss of three lives and 5,000 persons displaced. The losses in 1995 have not been totalled yet, but

preliminary estimates are over \$40 million. According to the Corps of Engineers, almost all of this damage would have been prevented by the project now in progress.

PROJECT DESCRIPTION AND CURRENT STATUS

The flood control plan provides 100 year level of protection to the City of Napa from flooding on the Napa river and Napa Creek. The improvements consist of channel excavation, sheetpile walls, set-back flood walls, set-back levees, a bypass channel, and related environmental mitigation measures.

Project improvements on the Napa River would cover 5.7 miles of the lower reaches of the river, principally in the City of Napa. A recreation plan sponsored by the City of Napa would include pedestrian/hiking trails on project land. Napa Creek improvements will consist of 2,600 feet of channel excavation and streambank protection. A record of damage from recent floods is included as Appendix A of this statement. The cost/benefit ratio is 1.35 to 1.0 flood control, and 2.14 to 1 for recreation.

This is the seventh year in the life of the approved project. Appendix B of this statement provides a milestone of the complete time schedule and the current status of the schedule. As is indicated, the most time consuming elements of the project, other than actual construction, have been completed.

POLICY ISSUE

The President's proposed budget also includes a policy proposal which would redefine conditions for federal participation in local flood control projects. If enacted, this policy proposal would effectively eliminate the Napa Flood Control Project from federal participation. The \$130 million price tag would make a "go it alone" decision unrealistic and impossible for a total County-wide population of 117,366.

Further, to discontinue this project after almost seven years of activity and \$15 million in federal and local expenditures would constitute a breach of good faith. At the end of FY 1996, the Corps of Engineers estimate of expended funds is \$11.4 million.

Finally, federal costs associated with past and possible future floods more than justifies completion of this project. To institute a policy such as this retroactively would be an unfair and damaging decision.

BUDGET

The current estimate of local/federal sharing of project cost is as follows:

<u>NAPA RIVER FLOOD CONTROL PROJECT</u>			
<u>COST SUMMARY</u>			
<u>FISCAL YEAR</u>	<u>LOCAL FLOOD CONTROL</u>	<u>LOCAL RECREATION</u>	<u>FEDERAL</u>
Costs thru 1994	*1,000,601	85,000	9,513,000
Costs for FY 96-97	250,000	25,000	1,687,000
Fiscal Year 1997	9,570,000	30,000	10,000,000
1998	13,050,000	130,000	8,000,000
1999	29,510,000	1,070,000	8,000,000
2000	6,780,000	0	8,000,000

FISCAL YEAR	LOCAL FLOOD CONTROL	LOCAL RECREATION	FEDERAL
2001	7,260,000	0	13,000,000
2002	1,330,000	0	7,170,000
2003	(2,000,000)	(30,000)	2,030,000
TOTAL	66,750,601	1,310,000	67,400,000

ANNUAL PROJECT MAINTENANCE

Flood Control	282,000	0
Recreation	40,000	0

In 2003, local share is above 50% of total project costs. Federal reimbursement is made to provide for 50/50 cost sharing.

*NOTE: These are cash outlays. An additional \$4.24 million in staff resource time not included above.

Corps continues navigation dredging - costs not shown in annual maintenance.

The President's FY 1996 proposed budget includes \$787,000 to complete engineering design and environmental certification. We urge the Committee's approval of this item to continue the progress of the project to ultimate completion.

APPENDIX A

NAPA RIVER CALIFORNIA - RECENT FLOODING

FEBRUARY 1986

F.E.M.A. REPORTED LOSSES

ECONOMIC	\$124,000,000
LIVES LOST	3
HOMES DESTROYED	400
HOMES DAMAGED	900
BUSINESSES DESTROYED	20
BUSINESSES DAMAGED	150

JANUARY 1995

F.E.M.A. DAMAGE SURVEY (PRELIMINARY)

ECONOMIC	\$6,040,000
HOME DESTROYED	
HOMES DAMAGED	123
BUSINESSES DESTROYED	
BUSINESSES DAMAGED	5
AGRICULTURAL DAMAGE	\$2,500,000

MARCH 1995

F.E.M.A. DAMAGE SURVEY (PARTIAL)	
ECONOMIC	\$38,500,000
HOMES DESTROYED	195
HOMES DAMAGED	408
BUSINESSES DESTROYED	10
BUSINESSES DAMAGED	37
AGRICULTURAL DAMAGE	\$7,500,000

AS OF MARCH 15, 1995,
 FEDERAL DAMAGE SURVEY TEAMS ARE STILL
 IN NAPA ASSESSING DAMAGES AND
 RESPONDING TO REQUESTS FOR AID FOR
 VICTIMS OF THE JANUARY 1995 FLOOD
 WHILE LOCAL EMERGENCY CREWS ARE STILL
 ENGAGED IN THE CURRENT EMERGENCY
 (MARCH 1995 FLOOD)

APPENDIX B

THE NAPA RIVER SCHEDULE IS:

Initiation of Pre-Construction Engineering and Design (PED)	Oct. '88	Completed
General Design Conference	Jan. '89	Completed
Public Hearing	May '89	Completed
Public Scoping Workshop	Jun. '89	Completed
Inter-Agency Constraints and Concerns Workshop	Aug. '89	Completed
Napa City Council Sponsors Recreation Component	Sep. '89	Completed
"Information Paper No. 1" Concept Design released for local task force and Division Review	May. '90	Completed
Public/Technical Review of Alternatives and Recreation Element	Apr.-Aug. '91	Completed
In-Progress Review, Alternatives, HTW Schedule and Cost Revisions	Aug. '92	Completed
Identify National Economic Development Act (NED) Plan	May '93	Completed
Technical Review, Administrative Review Draft Design Document (GDM) - EIS-EIR	Aug.-Dec. '94	Completed
Publish Draft GDM/EIS-EIR	31 Mar. '95	Completed

Submit Draft EMD/EIR to EPA	24 May '95	Completed
Approve Construction	August '95	
Initiate Plans and Specs	Jun. '96	
Sign Project Cooperation Agreement (PCA)	Nov. '96	
Begin Construction	Aug. '97	
Complete Construction	Jun. '04	

PREPARED STATEMENT OF MAYOR ALAN AIROLDI, TOWN OF CORTE
MADERA, CA

Good Afternoon! My name is Alan Airol di. I am the Mayor if Corte Madera, California.

I am before you this morning to urgently request that this Subcommittee maintain the President's FY 96 budget allocation of \$234,000 for the feasibility study listed as the **Marin County Shoreline - San Clemente Creek**.

The Town of Corte Madera is located on San Francisco Bay just north of the Golden Gate Bridge. This area is an ideal location and desirable place in which to live.

Unfortunately, our location on San Francisco Bay has place us at the mercy of ~~serious~~ tidal problems. This flooding occurs in the area along San Clemente Creek and is caused by a combination of high tides, ground subsidence and storm water runoff. We certainly have had our share of wet weather this year. But tidal flooding can even occur in dry weather. It is predicted to increase with the passage of time because the area is settling as the bay mud which lies underground continues to consolidate.

My town is committed to maintaining the community's safety and quality of life. To that end, the Town and the U.S. Army Corps of Engineers signed a Cost Sharing Agreement to conduct a Feasibility Study which define the flooding problem and develop a plan for Congressional and local action.

The Town Council approved the Cost Sharing Agreement and has budgeted funds to pay its full share.

Last year, with the support of this Subcommittee, the Town secured funding for the Feasibility Study which is now well underway and scheduled for completion next year.

This year, the President's FY 96 Budget includes funds to complete the study. I respectfully request that you maintain the FY 96 budget allocation of \$234,000 for the Marin County Shoreline - San Clemente Creek Feasibility Study.

In addition, I also request that you add an allocation of \$150,000 to the FY 96 Budget to provide for a seamless transition into pre-construction engineering and design which the Corps has the capability of conducting in the latter part of FY 96.

Thank you very much for your kind attention and continuing support for this important project.

PREPARED STATEMENT OF ROSEMARY C. KAMEI, CHAIR/BOARD OF
DIRECTORS, SANTA CLARA VALLEY WATER DISTRICT

GUADALUPE RIVER PROJECT

BACKGROUND

The Guadalupe River is one of the major waterways that flow through the highly developed area of San Jose, California. Historically, the river has flooded the downtown areas of San Jose and Alviso beyond local capability to prevent. For example, estimated damages from a 1 percent flood that would inundate the urban center of San Jose, is \$527 million. It is estimated that a 2 percent flood on this river would cause \$234 million worth of damage under existing conditions. The probability of such a flood occurring before implementation of flood prevention measures is quite high. A 2 percent flood has an 18 percent chance of occurring during a 10-year period; a 1 percent flood has about 10 percent chance of occurring during this same period. There is strong potential, therefore, that a damaging flood will occur before the problem can be resolved. The Guadalupe River had started to overflow its banks in April 1982 and January 1983 before the storms receded and avoided major damage. The Guadalupe River did overbank in February 1986 and most recently, on January 9, 1995, and March 10, 1995, causing some damage to residences and business in the St. John and Pleasant Street area.

PROJECT SYNOPSIS

In 1971, the community requested the Corps of Engineers (Corps) to reactivate its earlier study. The Plan of Study was completed in 1973. The initial problem definition and alternative screening was completed in 1974. More detailed problem definition and alternative studies for the Guadalupe River were completed in 1978. The Stage 2 report was completed for the combined Guadalupe River, Coyote

Creek and Baylands. The report at that time established the economic feasibility and federal interest in the Guadalupe River.

The Guadalupe River project received authorization for construction under the Water Resources Development Act of 1986. Since that time, the final General Design Memorandum (GDM) was completed in 1992, the local cooperative agreement was executed in March 1992, construction of the first phase of the project was completed in August 1994, and a construction contract for the second phase of the project was awarded in July 1994.

In an effort to accelerate the completion of this project, the local community through the Santa Clara Valley Water District has provided a substantial amount of technical and financial assistance since 1972. The local community has initiated local projects within the Corps project reach and reaches downstream of the Corps limits. In excess of \$28 million in local funds has been spent on the planning, design and construction of such improvements to date.

FY 1995 FUNDING

The 1995 Budget includes \$10 million to continue construction of the Guadalupe River Project. Construction of Contract 1 was completed in August 1994. Construction of Contract 2 is proceeding and scheduled to be completed in January 1996. Contract 3 of the project is scheduled to be advertised in April 1996.

NECESSARY FY 1996 FUNDING

Funding for the Guadalupe River project during 1996 in the amount of \$8.1 million to continue construction is essential to providing critically needed flood protection to the metropolitan area of San Jose and the north San Jose community of Alviso.

RECOMMENDATION

Based upon the present high flood risk and potential damage from the Guadalupe River, it is requested that the Committee support \$8.1 million that is included in the Administration's budget to continue construction of the Guadalupe River project.

UPPER GUADALUPE RIVER PROJECT

BACKGROUND

The Guadalupe River is one of the two major waterways that flow through the highly urbanized area of Santa Clara County, California. Historically, the river has flooded the central district of San Jose and areas south beyond local capability to prevent. For example, the estimated damages from a 1 percent flood, which would inundate the urban center of San Jose, is \$527 million. Damages in the Upper Guadalupe River's densely residential floodplain south of Highway 280 would exceed \$50 million. The probability of a large flood occurring before implementation of flood prevention measures is quite high. A 2 percent flood has an 18 percent chance of occurring during a 10-year period; a 1 percent flood has about 10 percent chance of occurring during this same period. There is strong potential, therefore, that a damaging flood will occur before the problem can be resolved. The Upper Guadalupe River near Alma Street had started to overflow its banks in February 1980 before the storm receded and avoided major damage. The Upper Guadalupe River did overbank in March 1982, January 1983, February 1986, and again in January 1995, and March 10, 1995, causing damage to several residences and businesses in the Alma Street and Willow Street area. The flooding of January 9, 1995, and March 10, 1995, closed Highway 87.

STUDY SYNOPSIS

In 1971, the community requested the Corps of Engineers (Corps) to reactivate its earlier study. The Plan of Study was completed in 1973. The initial problem definition and alternative screening was completed in 1974. More detailed problem definition and alternative studies for the Guadalupe River were completed in 1978. The 1980 Stage 2 report established the economic feasibility and federal interest in the Guadalupe River only between Highway 880 and Highway 280. In light of flooding in 1982 and 1983, the local sponsors requested that the Corps reopen its study of the Upper Guadalupe River

(upstream of Highway 280). The Corps completed a reconnaissance study in November 1989 which established that there was an economically justifiable alternative solution to the flood problem. The report recommended proceeding to the feasibility study phase. A Feasibility Cost-Sharing Agreement (FCSA) was signed by the local sponsor and the Corps on October 16, 1990 and amended in December 1992. The milestone F4 conference resulted in a reformulation of the project alternatives. A new FCSA is being prepared to show a new schedule and higher project cost. The new estimate is for a \$4.2 million study scheduled for completion by 1997.

FY 1995 FUNDING

A feasibility investigation on the Upper Guadalupe River continued in 1995 with funding in the amount of \$100,000.

NECESSARY FY 96 FUNDING

Funding for the Upper Guadalupe River project during 1996 in the amount of \$285,000 to continue the feasibility study effort is essential to timely implementation of critically needed flood protection.

RECOMMENDATION

Based upon the present high flood risk and potential damage from the Upper Guadalupe River, it is requested that the Committee support \$285,000 that is included in the Administration's budget for 1996 to continue the feasibility study on the Upper Guadalupe River. Costs of the study are shared equally between the sponsor and the Corps.

COYOTE/BERRYESSA CREEK PROJECTS

BACKGROUND

The Coyote and Berryessa Creeks investigation was authorized by Congress in 1941 under the Guadalupe River and Adjacent Streams authority. Coyote Creek is one of the two major waterways that flow through the highly urbanized areas of San Jose, Milpitas and Santa Clara County, California. Berryessa Creek flows through a small portion of San Jose and the growing community of Milpitas. Historically, Coyote Creek has flooded the north San Jose community of Alviso beyond local capability to prevent. Damages on Coyote Creek would be \$237 million during the 1 percent event to the north San Jose and Milpitas area. Berryessa Creek would cause \$20 million in damage to the homes and industry of Milpitas. The probability of a large flood occurring before implementation of flood prevention measures is quite high. A 2 percent flood has an 18 percent chance of occurring during a 10-year period; a 1 percent flood has about 10 percent chance of occurring during this same period. There is strong potential, therefore, that a damaging flood will occur before the problem can be resolved. In January 1983, floodwaters escaped from Berryessa Creek and caused damage to several homes and businesses. Coyote Creek has caused the greater damages amounting to several million dollars, overbanking in April 1982 and again in March 1983. Hundreds of people were forced to evacuate their homes where floodwater stood for many days. Flood damages were avoided in January and again in March 1995 due to the protection offered by the partially constructed project.

PROJECT SYNOPSIS

In 1971, the community requested the Corps of Engineers (Corps) to reactivate its earlier Guadalupe River and Adjacent Streams Study which included Coyote Creek. The Plan of Study was completed in 1973. The initial problem definition and alternative screening was completed in 1974. More detailed problem definition and alternative studies were completed in 1978. The third phase, study of freshwater flooding in the Baylands, (which included the lower reaches on Coyote Creek) was completed in 1979. The Stage 2 report could not establish the economic feasibility and federal interest in Coyote Creek. In light of flooding in 1982 and 1983, the Corps refocused its study on Coyote Creek to address the inadequate level of protection provided by unstable levees. Berryessa Creek originally was a Section 205 study but was combined with Coyote Creek when the project cost exceeded the limits of that program.

In an effort to accelerate the completion of this overall program, the local community through the Santa Clara Valley Water District has provided a substantial amount of technical and financial assistance since 1972. Special planning studies have been completed by the District for inclusion into the Corps' studies. The Coyote/Berryessa Creek project received authorization for preconstruction, engineering and design under the Water Resources Development Act of 1986. The project was authorized for construction under the Water Resources Development Act of 1990. The Project Cooperation Agreement for Coyote Creek was executed in August 1994.

The severe flood problem and the ominous threat of future damages has forced the local community to initiate a local project on Coyote Creek in anticipation of future federal participation. Over \$30 million has been spent on the planning, design and construction of improvements on Coyote Creek to date, which are planned for augmentation of and incorporation into the federal project. The Chief of Engineer's February 1989 report contained \$8.63 million Section 104 credit for flood control measures undertaken by the District from San Francisco Bay to Milpitas Sewage Treatment Plant. Congress authorized, in the Water Resources Development Act of 1988 (PL 100-676), \$3 million in reimbursement to the Water District for construction of flood control measures upstream of the Milpitas Sewage Treatment Plant. The District has completed this work. A Section 215 agreement was executed with the Corps in December 1993 which provides additional \$3 million for the sponsor to design and construct approximately 7,000 feet long of Coyote Creek upstream of Highway 237 in the cities of San Jose and Milpitas. This reach is currently under construction and is scheduled to be completed in November 1995.

FY 1995 FUNDING

The 1995 Budget included \$12 million to continue Preconstruction Engineering and Design (PE&D) on Berryessa Creek and continue construction on Coyote Creek. The Corps awarded the Coyote Creek construction contract in September 1994. Construction is scheduled to be complete in November 1995.

NECESSARY FY 96 FUNDING

Construction funding for the Coyote/Berryessa Creek projects during 1996 in the amount of \$12 million as contained in the Administration's budget will be required to continue federal construction of the Coyote Creek project and complete GDM preparation and design for Berryessa Creek.

RECOMMENDATION

Based upon the present high flood risk and potential damage from Coyote and Berryessa Creeks, it is requested that the Committee support continued construction funding in the amount of \$12 million as included in the Administration's budget to continue federal construction.

UPPER PENITENCIA CREEK PROJECT

BACKGROUND

The Upper Penitencia Creek watershed is located in the northeast part of Santa Clara County, California, near the southern end of San Francisco Bay. The creek has flooded many times, most notably in 1911. More recently the creek overbanked in 1978, 1980, 1982, 1983, 1986, and 1995. The January 9, 1995, event caused damage to a commercial nursery and deposited mud in a condominium complex and a business park.

The proposed project on Upper Penitencia Creek, from Coyote Creek confluence to Dorel Drive, will protect portions of cities of San Jose and Milpitas. The watershed is completely urbanized, undeveloped land is limited to a few scattered parcels still used for agriculture, and the corridor along Upper Penitencia Creek. Based on 1980 land use, 4,200 buildings are located in the floodprone area, 1,300 of which will have water entering the first floor. The estimated damages from a 1 percent or 100-year flood is \$48 million.

STUDY SYNOPSIS

The Natural Resources Conservation Service (NRCS) under the authority of the Watershed Protection and Flood Prevention Act, Public Law 83-566, completed a study of the economic feasibility

of constructing flood damage reduction facilities on Upper Penitencia Creek. However, NRCS watershed plan has been stalled since 1990 by the U.S. Department of Agriculture because the benefits to agriculture are less than 20 percent of the total benefits of the project.

The Santa Clara Valley Water District requested that the Corps proceed with a reconnaissance study in April 1994 as one possible option to solving the dilemma of the stalled NRCS plan. Funds were appropriated by Congress for FY 1995 and the Corps started the reconnaissance study in October 1994. The Reconnaissance Report is proceeding satisfactorily and is scheduled to be completed in June 1995.

FY 1995 FUNDING

The Reconnaissance Study started on Upper Penitencia Creek in FY 1995 with funding in the amount of \$150,000. The study is scheduled to be completed in June 1995.

NECESSARY FY 1996 FUNDING

Funding for the Upper Penitencia Creek project during FY 1996 in the amount of \$300,000 to start Feasibility Study is essential to providing needed flood protection to the citizens in Cities of San Jose and Milpitas.

RECOMMENDATION

Based upon the present high flood risk and potential damage from Upper Penitencia Creek, it is requested that the Committee include \$300,000 to initiate a feasibility study for the Upper Penitencia Creek project.

SAN JOSE AREA WATER RECLAMATION AND REUSE PROGRAM

BACKGROUND

The San Jose Area Water Reclamation and Reuse Program, also known as South Bay Water Recycling, will allow the City of San Jose and its tributary agencies of the San Jose/Santa Clara Water Pollution Control Plant to protect endangered species habitats, meet receiving water quality standards and supplement the Santa Clara County water supplies.

The Santa Clara Valley Water District (District) is participating with the City of San Jose in the development of the reclamation and reuse program. Towards that end, the District is assisting the City of San Jose in providing financial support and technical assistance for program planning, liaison with water retailers, and in providing design, construction, inspection, and other services for the Program.

The Program is divided into two phases. Phase 1, now entering final design, involves construction of nearly 100 miles of transmission and distribution pipelines, pump stations and reservoirs, and has an estimated capital cost of \$130 million. It is anticipated that Phase 1 will begin operations in November 1997, and will deliver an estimated 9,000 acre-feet/yr of nonpotable recycled water. The City of San Jose is the program sponsor for Phase 1.

Phase 2, estimated to be completed in 2001, will involve the assessment of other potential recycling strategies including additional nonpotable, groundwater recharge, and surface water augmentation. The City of San Jose and the District will be working jointly on this effort.

In 1992, Public Law 102-575 authorized the Bureau of Reclamation to participate with the City of San Jose and the District in the planning, design, and construction of demonstration and permanent facilities to reclaim and reuse water in the San Jose metropolitan service area.

FY 1995 FUNDING

Construction funding of the San Jose Area Water Reclamation and Reuse Program started in 1995 with funding in the amount of \$1,715,000.

NECESSARY FY 96 FUNDING

Funding for the San Jose Area Water Reclamation and Reuse Program during 1996 to continue the construction effort is essential to timely implementation of this important water supply project.

RECOMMENDATION

Based on the important water supply and environmental benefits to the area, it is requested that the committee continue the construction funding for the San Jose Area Water Reclamation Program. Costs of the project are shared between the sponsor and the Bureau of Reclamation.

SAN FRANCISCO AREA WATER RECLAMATION STUDY

BACKGROUND

The purpose of the San Francisco Area Water Reclamation Study, also known as the Central California Regional Water Recycling Project, is to conduct a feasibility study to identify California regions that could use high-quality recycled water for such purposes as agricultural irrigation or salinity control. The study is examining if freshwater can be freed-up, and what potential exchange could result to benefit to the environment, urban, or industrial needs. Only excess recycled wastewater that exceeds maximum local usage by Bay Area municipalities would be exported to outside regions for beneficial reuse. This excess water is currently disposed of into the San Francisco Bay, rivers and Delta—a discharge option that will be more difficult in the face of increasingly stringent discharge limitations and higher treatment standards facing the entire State.

The feasibility study is scheduled for completion in October 1995, so that a complete environmental review of the best alternatives can be completed by October 1997. These deadlines comply with the PL 102-575 requirement for a report back to Congress no later than 4 years after the Bureau of Reclamation's first appropriation in October 1993.

The Santa Clara Valley Water District is participating in the feasibility study in providing financial, technical, and project management support, along with other local water and wastewater agencies.

FY 1995 FUNDING

Feasibility Study funding of the San Francisco Area Water Reclamation Study in FY 1995 was \$790,000.

NECESSARY FY 96 FUNDING

Funding for the San Francisco Area Water Reclamation Study during 1996 to continue the feasibility study effort is essential to timely completion of the Study.

RECOMMENDATION

Based on the important water supply and wastewater discharge benefits to the region, it is requested that the committee continue the feasibility study funding for the San Francisco Area Water Reclamation Study. Costs of the project are shared between the sponsor and the Bureau of Reclamation.

PREPARED STATEMENT OF VENTURA COUNTY AND VENTURA COUNTY
FLOOD CONTROL DISTRICT

The Santa Paula Creek project in Ventura County is unusual in the annals of the Corps of Engineers. It was authorized by Congress in 1948 and construction of the first phase was completed in 1974. However, after bids for the second phase had been received and a contract awarded in 1974, a preliminary injunction was issued which prevented this contract from proceeding. Subsequently, construction of the project was permanently enjoined for failure to comply with the National Environmental Policy Act.

In the ensuing years the first phase facility, which was dependent on upstream debris retention that was not constructed, has been severely damaged and has deteriorated to the point where it constitutes a hazard and could cause damages to adjacent property including the Route 126 freeway which passes over it. Although the first phase facility lies within right-of-way owned by the Ventura County Flood Control District, it has not been accepted for maintenance and remains the responsibility of the Corps.

As provided in the project cooperation agreement, the Flood Control District acquired more than 2.7 miles of right-of-way but the Corps has not fulfilled its obligations under the agreement, since the project remains to be completed.

During the almost 20 years since the project was enjoined, the Corps has attempted to develop an environmentally sensitive project, and during the past several years has been preparing a General Re-evaluation Report. This is essentially complete and a new EIS is ready for public review. The recommended project is more environmentally compatible and, based on comments received to date, appears to be acceptable to all interests.

Because of the dismal condition of the first phase facility, it is essential that construction of the project be re-initiated at the earliest possible date. Accordingly, we are requesting a \$4 million appropriation for FY 1996. This will enable the Corps to commence replacement of the deteriorated first phase facility with a new facility consistent with overall project recommended in the General Re-evaluation Report. It is our understanding that the Corps has the ability to accelerate the design work so that physical construction can begin in FY 1996, provided the \$4 million is appropriated.

Early re-initiation of the project is justified because of the dangerous condition created by the existing first phase facility, and to obviate further extensive expenditures by the Corps and the Flood Control District related to the incompleted project. Recent expenditures of this nature include those made by the Corps in 1992, 1994, and 1995. These amounted to approximately \$150,000, \$125,000 and \$70,000, respectively.

We also believe it will be necessary for the Corps to spend more in the coming months due to damage sustained this winter. In addition, it was necessary for the Flood Control District to spend in excess of \$300,000 this winter within the right-of-way it acquired for the uncompleted project beyond the limits of the existing first phase facility.

It has been determined that the proposed recommended plan being considered in the General Re-evaluation Report can be pursued under the existing project authorization, and that the existing project agreement with the Ventura County Flood Control District can apply with minor modifications. The injunction against

further construction is being addressed in the new EIS and, based on coordination to date, no controversy is anticipated.

As mentioned earlier, the existing first phase facility poses a hazard. This was acknowledged as long ago as February, 1990 in a letter from the Commanding Officer, South Pacific Division of the Corps to the Chief of Engineers in which he stated, "I was appalled by the presently deteriorated and unsafe condition of the channel. It was clear to me that the partially constructed concrete channel, damaged by the recent floods and the present build-up of debris and sediment in the channel, poses a threat of flooding that may result in loss of human life and destruction of property." Conditions today are even worse, and demand expeditious action.

Finally, as an indicator of the importance of completing this project to the City of Santa Paula, the following figures are pertinent. About 4000 homes are located, and about 13,000 people live, in the flood plain mapped by the Federal Emergency Management Agency. This flood plain also includes the entire downtown area, the City's historic neighborhoods, and five of seven schools in the elementary school district. Completion of the project recommended in the General Re-evaluation Report will lift the flood threat and the flood insurance premium burden from all of these people and properties.

We sincerely appreciate the subcommittee's consideration of our request.

PREPARED STATEMENT OF THE HONORABLE GARTH GARDNER,
COUNCILMEMBER, CITY OF PICO RIVERA, CA

Mr. Chairman and members of the subcommittee, I am Garth Gardner, Councilman from the City of Pico Rivera, California, and Chairman of the Southeast Water Coalition Joint Powers Authority. I appreciate this opportunity to testify on behalf of the Authority and urge the subcommittee to adopt the Administration's budget request of \$375,000 for the Army Corps of Engineers' feasibility study of the Central Basin Groundwater Protection Project.

The Southeast Water Coalition is a joint powers authority of 13 cities and the Water Replenishment District of Southern California located in the Central Groundwater Basin in Los Angeles County. The Authority was established in 1991 for the purpose of protecting the Central Basin from contaminated groundwater plumes originating in the San Gabriel Basin migrating towards Whittier Narrows, the outlet of the San Gabriel Basin into the Central Basin. The Authority's mission has since been broadened to also address water conservation and supply issues. Groundwater provides 65% of the drinking water needs of 1.6 million residents in the Central Basin.

Following the identification of significant levels of volatile organic compounds in 1984, the San Gabriel Basin was declared a Superfund site. The southern border of the Superfund site is the Whittier Narrows Dam, constructed and operated by the Army Corps of Engineers. The dam is the northern boundary of the Montebello Forebay in the Central Basin. The dam was authorized by the 1941 Flood Control Act. In addition to flood control objectives, the dam is operated to facilitate the recharge of imported and reclaimed water,

both at the dam site and the spreading facilities located downstream of the dam.

The Army Corps of Engineers was engaged in 1992 to address the Central Basin contamination issue because (1) EPA's CERCLA authority to address the contamination threat posed to the Central Basin is limited; (2) the migration of contaminated groundwater could have an impact on water conservation in the Central Basin; (3) the Whittier Narrows dam, the southern border of the Superfund site, and its operation by the Corps offers possible alternatives for increased water conservation through additional groundwater recharging with incidental water quality benefits; and (4) the Corps has existing authority to study this issue given the nexus between water conservation and groundwater contamination in this area.

The reconnaissance study for the Central Basin Groundwater Protection Project was authorized by the 1992 Water Resources Development Act. A feasibility study was authorized in the Energy and Water Development Appropriations Bill of 1994 appropriating \$750,000 for the study.

The objectives of the study, to be completed this summer, are to (1) evaluate the effects of potential groundwater contamination on groundwater supplies in the Central Basin; and (2) investigate alternatives for implementing preventive or remedial measures to ensure water supplies that meet applicable local, state, and federal regulations and guidelines.

Expanded authorization for the feasibility study, if required, will be sought by the JPA this spring in the Water Resources Development Act of 1995. That authorization would seek to expand the authority of the Corps to incorporate water quality for this specific project, because of the nexus between water conservation and water conservation and water quality and supply.

The project will move to the feasibility study phase if the reconnaissance study finds there is a federal interest and a local sponsor is identified. These conditions are expected to be met. The feasibility study will evaluate alternate solution plans and fully define and recommend a project or projects.

The Southeast Water Coalition Joint Powers Authority would appreciate your continued support for this vital project study.

Thank you.

PREPARED STATEMENT OF CARL L. BLUM, DEPUTY DIRECTOR,
DEPARTMENT OF PUBLIC WORKS, LOS ANGELES COUNTY, CA

Summary of recommendations by Los Angeles County Department of Public Works concerning budget allocations to the U.S. Army Corps of Engineers.

We strongly support the California Water Commission's recommendation to the Committee for:

- \$11,367,000 to fund the construction phase of the Los Angeles County Drainage Area (LACDA) project.
- \$400,000 to continue the Los Angeles County Drainage Water Conservation and Supply Feasibility Study for Hansen and Lopez Dams.
- \$460,000 to continue the Los Angeles County Drainage Water Conservation and Supply Feasibility Study for Santa Fe and Whittier Narrows Dam.

Mr. Chairman and Members of the Committee:

We appreciate your Committee's continued support of critical flood control and water conservation projects in Los Angeles County, California.

Floods are a part of the history of the Los Angeles area. Widespread floods have periodically devastated vast areas of the region and were responsible for taking of lives, damaging property and interrupting commerce and trade.

The U.S. Army Corps of Engineers and County of Los Angeles have built one of the most extensive flood control systems in the world. Construction of the major elements of the system began in the 1930s and consists of 20 major dams, 500 miles of open channels, and many Development which occurred after World War II exceeded the projections the Corps designers made in the 1930s and has increased runoff to the point where, even in a moderate storm, the runoff could exceed the design capacity of portions of the system. For example, the lower Los Angeles River in the City of Long Beach can only provide protection from a 40-year flood and came close to overtopping in 1980. A storm of greater magnitude would have a tremendous impact, both personal and economic on Los Angeles County, the nation's second largest metropolitan area.

At the request of the County of Los Angeles, the U.S. Army Corps of Engineers analyzed the adequacy of the existing major flood control facilities serving the Los Angeles basin in the LACDA Review Study. In 1987, the Corps of Engineers completed the Problem Identification Phase of the Study. In 1990, the proposed Project received Congressional approval subject to a favorable report by the Chief of Engineers, and signature by the Secretary of the Army. In early 1992, the Corps began the Pre-construction Engineering and Design (PED) phase of this project. PED took three years with a total expenditure of \$10.5 million.

The Final Report by the Corps identifies 100-year flood damages totaling \$2.25 billion covering an 82-square-mile area which houses over 500,000 people. All these damages would occur in the heavily-urbanized Los Angeles basin, where adequate protection from a 100-year flood was previously provided.

This project is a critical modification to an existing facility. Obtaining funds to do the modification is critical for two reasons: first, because of the threat of flooding to over 1/2 million people; and, second, because FEMA is in the process of preparing Flood Insurance Rate Maps (FIRMs) for the area that would be affected by overflows from the lower Los Angeles River and Rio Hondo Channel. The financial impact on the affected property owners could reach as high as \$131 million annually for Flood Insurance premiums. Any delay in construction causes a great financial hardship on thousands of people (who thought the existing river provided adequate protection) who will need to now buy flood insurance until such a project is completed.

An economic impact study done by the University of Southern California indicated that failure to construct the needed flood control measures will result in a job loss as high as 120,000 and an economic loss to the region of over \$30 billion over a 10-year period.

The 1994-95 Fiscal Year approved budget includes money to complete the PED phase and provided "new start" funding for construction to begin.

We strongly support the California Water Commission's recommendation for \$11,367,000 for the continuing construction phase of the LACDA Project.

Since their inception, the majority of the County's 15 dams have performed a dual role. In addition to flood control, our facilities have also been used to capture local storm runoff in order to assist in recharging our underground aquifers. With the exception of Whittier-Narrows Dam, Corps facilities are not used to assist in groundwater recharge activities. However, the recent six-year drought in California, coupled with increased demands on our existing water supply system have shown the need of integrating local resources to better manage our local water supplies.

While the County captures much of the water flowing within our flood control system, 280,000 acre-feet on average is lost to the Pacific Ocean each year from the Los Angeles River. Since 1985, the County has been working to reduce this loss by improving its existing water conservation system. The utilization of certain Corps facilities could be an integral part of this system by storing significant amounts of this lost runoff.

In 1993, Congress authorized the Corps to initiate a reconnaissance study to determine the viability of increased use of Corps facilities for water conservation. The study looked at establishing water conservation pools at Hansen, Lopez, and Santa Fe Dams, and increasing the existing water conservation pool at Whittier Narrows Dam. The utilization of these facilities would benefit many of the groundwater basins in the County. A secondary benefit would be realized by helping to dilute the groundwater pollution that currently threatens many water supply wells within these basins.

In May 1994, the Corps' reconnaissance study was completed. Preliminary benefit-cost ratios range from 2.2 to 19.0 for the four study sites, and the annual economic benefits range from \$622,700 to \$6,463,000. Overall, the four reservoirs could potentially conserve nearly 17,000 acre-feet annually of additional storm runoff, enough water to serve the annual needs of nearly 136,000 people. The study concluded that two feasibility studies were warranted: one for the Hansen Dam-Lopez Dam System, the other for the Santa Fe Dam-Whittier Narrows Dam system. The Corps began these feasibility studies in January 1995 with Los Angeles County as the local sponsor. Each feasibility study is to be conducted over a 3-year period at a total feasibility cost of \$4.66 million (\$2.24 million for the Hansen-Lopez System and \$2.42 million for the Whittier Narrows-Santa Fe System). The County will contribute 50 percent of the necessary funds. The Corps has funding authority for the 1995 Fiscal Year, for \$0.25 million for each study.

We strongly support the California Water Commission's recommendation to continue necessary funding in the 1996 Fiscal Year of \$0.40 million for the Hansen-Lopez Study and \$0.46 million for the Whittier Narrows-Santa Fe Study.

We appreciate your committee's continued support in addressing these critical concerns in the Los Angeles County area of Southern California.

PREPARED STATEMENT OF THE HONORABLE DIANE BOGGS,
COUNCILMEMBER, CITY OF DOWNEY, CA

ON BEHALF OF THE LACDA ALLIANCE, I WOULD LIKE TO REQUEST THAT THE SUBCOMMITTEE FUND THE ADMINISTRATION'S BUDGET REQUEST OF \$11.367 MILLION TO CONTINUE CONSTRUCTION OF THE LACDA FLOOD CONTROL PROJECT IN LOS ANGELES COUNTY.

THE LACDA ALLIANCE IS A GROUP OF SEVEN CITIES ALONG THE LOS ANGELES AND RIO HONDO RIVERS, WHICH STRONGLY SUPPORT THE CONSTRUCTION OF THIS ESSENTIAL PROJECT TO RESTORE ADEQUATE FLOOD PROTECTION TO OUR AREA. SIGNIFICANT PORTIONS OF LOS ANGELES COUNTY'S POPULATION FACE DEVASTATING LOSSES IN THE EVENT OF A MAJOR STORM AND RESULTING FLOODING. AS MUCH AS 82 SQUARE MILES IN THE LOWER LACDA BASIN WOULD BE INUNDATED IN A 100-YEAR FLOOD, AFFECTING ABOUT 500,000 PEOPLE AND ABOUT 177,000 STRUCTURES IN 11 CITIES, AND CAUSING UP TO \$2.3 BILLION IN DAMAGES.

WE NEED THE LACDA PROJECT FIRST AND FOREMOST FOR PUBLIC SAFETY. WE ALSO NEED THE LACDA PROJECT TO PREVENT AN ECONOMIC DISASTER. WITHOUT ADEQUATE PROGRESS TOWARD RESTORING THE FLOOD PROTECTION SYSTEM, MUCH OF LOS ANGELES COUNTY WOULD BECOME SUBJECT TO INSURANCE AND BUILDING RESTRICTIONS THAT ARE ESTIMATED TO COST THE REGION MORE THAN \$35 BILLION DOLLARS OVER A 10-YEAR PERIOD, AND RESULT IN THE LOSS OF MORE THAN 170,000 JOBS.

THE CORPS OF ENGINEERS HAS CONSIDERED NUMEROUS ALTERNATIVES AND THIS PROJECT, WHICH IS SCHEDULED TO START CONSTRUCTION THIS SUMMER, IS THE MOST COST-EFFECTIVE ALTERNATIVE THAT WILL PROVIDE THE ADEQUATE LEVEL OF FLOOD PROTECTION.

WE APPRECIATE YOUR PAST AND CONTINUED SUPPORT. THANK YOU.

PREPARED STATEMENT OF WILLIAM L. ZAUN, DIRECTOR OF PUBLIC WORKS, ORANGE COUNTY FLOOD CONTROL DISTRICT

A. SUMMARY

Mr. Chairman and Members, the Orange County Flood Control District (OCFCD), Orange County, California requests your support of the funding requested by the President to maintain the planned construction schedule for the Santa Ana River Mainstem Project (SARP) during Fiscal Year 1996.

As this Subcommittee is keenly aware, the U.S. Army Corps of Engineers considers the Santa Ana River to be the most critical flood threat in the West. The most severe flood likely to occur could impact 3 million people, kill 3,000 people and destroy property valued at more than \$15 billion in three urban Southern California Counties.

The Flood Control Districts of Orange, Riverside and San Bernardino Counties have entered into a Local Cooperation Agreement with the United States Department of the Army to provide a minimum of 25% of the total SARP cost. Local Sponsors' costs are now estimated to equal 42% of the total project cost of \$1.333 billion. OCFCD's share is about \$509 million; to date the District has allocated \$273 million for the SARP.

OCFCD has expended about \$105 million toward its responsibilities to provide cash, land and relocations to make way for construction of the SARP. Local Sponsors have obtained possession of about 1,550 acres of land for mitigation and 1,500 acres for construction of the new Seven Oaks Dam. Electric transmission lines impacted by the new dam have been relocated and the relocation of a hydroelectric plant has been arranged.

Land has been acquired and utilities have been relocated to support the U.S. Army Corps of Engineers accelerated construction schedule to improve the lower Santa Ana River Channel. The Talbert Channel ocean outlet has been relocated and the Santa Ana River ocean outlet widened. Approximately 12 miles of channel have been improved to increase floodwater carrying capacity. Four bridges have been lengthened to span the widened river. Ninety-two acres of degraded wetlands at the mouth of the Santa Ana River have been acquired and are being restored to mitigate project impacts. The OCFCD is developing a habitat management plan for preservation of open space and wildlife habitat in the Santa Ana Canyon below Prado Dam.

Right-of-way engineering is in progress for acquisition of about 1,600 acres of land for the Prado Dam feature. This land is required for the larger reservoir and includes residences, dairies, farming operations and citrus groves. Plans are also being prepared for the required relocation of State Route 71.

Your Subcommittee is undoubtedly aware of the bankruptcy of the County of Orange and may have questions regarding the affect of the bankruptcy on the OCFCD and the SARP. First, let me assure you that the OCFCD is not bankrupt. It is a separate legal entity with revenue from the proceeds of taxes which may only be used for flood control purposes. OCFCD funds have historically been deposited with and invested by the Orange County Treasurer. This was the case at the time the County of Orange declared bankruptcy. As a result of the County bankruptcy, the OCFCD will likely lose about \$40 million of the funds it had set aside for the SARP. This loss will have no short term impact on the progress of the SARP, but may result in delaying the acquisition of lands required for the full implementation of the Prado Dam feature of the SARP.

The Local Sponsors including the OCFCD are continuing to provide cash contributions, acquire property and perform relocations to enable the U.S. Army Corps of Engineers to maintain its construction schedule for Fiscal Year 1996. The support of the Committee on Appropriations, Subcommittee on Energy and Water Development for appropriations to continue construction of the SARP is urged to provide citizens of Orange, Riverside and San Bernardino Counties with urgently needed flood protection as early as possible.

B. FLOOD POTENTIAL - THE SANTA ANA RIVER

- Headwaters in San Bernardino Mountains, 75 miles to Pacific Ocean.
- Drains 3,200 square miles in Orange, Riverside and San Bernardino Counties in Southern California.
- Flows through Cities of Colton, Riverside, Norco, Anaheim, Santa Ana, Orange, Fountain Valley, Costa Mesa and Huntington Beach.

FLOODS IN ORANGE COUNTY

- 1938, greatest flood of this century, flooded the entire northern half of Orange County. Almost all bridges destroyed including damages to agricultural land which is now urbanized.
- 1862, greatest flood on record, approximating the Corps Standard Project Flood.

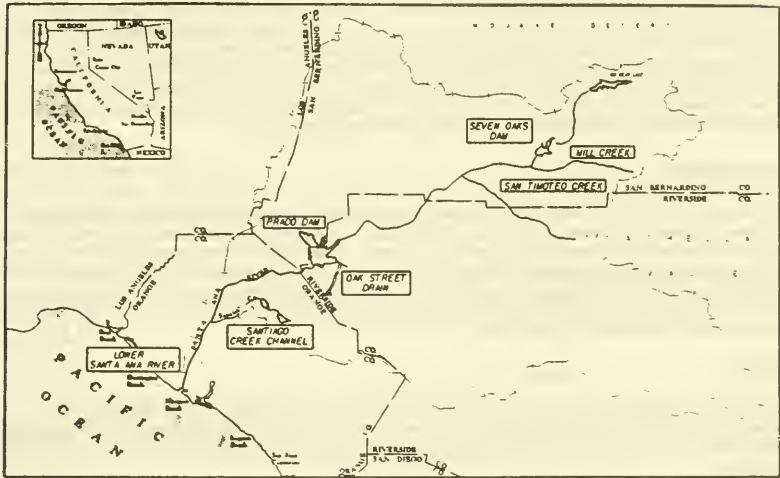
ESTIMATED DAMAGE

- Standard Project Flood would exceed capacity of Prado Dam.
- LEVEES WOULD BE BREACHED; flooding 110,000 acres from Anaheim to the ocean could impact 3 million people, kill 3,000 people and destroy property valued at \$15 billion.
- MAJOR TRANSPORTATION CORRIDORS INTERRUPTED: San Diego, Garden Grove, Santa Ana, Costa Mesa and Orange Freeways. Railroad Stations and Track.
- MAJOR PUBLIC FACILITIES WOULD BE INUNDATED. Hospitals, Shopping Centers, Colleges, Sanitation Plants, Stadiums, Disneyland, Knotts Berry Farm and Hotels.



C. SANTA ANA RIVER MAINSTEM PROJECT DESCRIPTION

The SARP is comprised of several features in Riverside, San Bernardino and Orange Counties.



MAJOR FEATURES

LOWER SANTA ANA RIVER

- ESTIMATED COST \$384 MILLION ESTIMATED COMPLETION: YEAR 2000
- IMPROVE 23-MILE CHANNEL FROM PRADO DAM TO THE PACIFIC OCEAN
- INCREASE CHANNEL CAPACITY FROM 28,000 CFS TO 47,000 CFS AT PACIFIC OCEAN
- RESTORE/ENHANCE 92 ACRE (8 ACRES MITIGATION) WETLANDS
- ACQUIRE 1,123 ACRES OF CANYON LANDS TO ENSURE SAFE RELEASES FROM PRADO AND PROVIDE OPEN-SPACE HABITAT
- RELOCATE 60 VARIOUS UTILITY LINES AND 15 OIL WELLS/LINES
- MODIFY 31 BRIDGES

PRADO DAM

- ESTIMATED COST \$472 MILLION ESTIMATED COMPLETION: YEAR 2000
- RAISE THE DAM FROM ELEVATION FROM 566 TO 594.4 FEET. (INCREASE TO 28.4 FEET)
- INCREASE RESERVOIR AREA FROM 6,695 ACRES TO 10,256 ACRES
- IMPOUNDMENT FROM 212,000 ACRE-FEET TO 362,000 ACRE-FEET
- INCREASE CAPACITY OF OUTLET GATES FROM 9,200 CFS TO 30,000 CFS
- ACQUIRE ABOUT 1,600 ACRES OF NEW FLOWAGE EASEMENTS
- RELOCATE OR PROTECT 30 VARIOUS UTILITY LINES
- RAISE STATE HIGHWAY ROUTE 71

SEVEN OAKS DAM

- ESTIMATED COST \$364 MILLION ESTIMATED COMPLETION: 1997
- 550-FOOT-HIGH, EARTH-ROCKFILL DAM, 2,980 FEET LONG
- GROSS CAPACITY OF 145,600 ACRE FEET
- REDUCES PEAK INFLOW OF 85,000 CFS TO A PEAK OUTFLOW OF 7000 CFS
- REQUIRES ABOUT 2,900 ACRES OF LAND OR EASEMENTS
- RELOCATE POWERHOUSE, FLUME & TRANSMISSION LINE; SPREADING BASINS, WATERWELLS

D. ORANGE COUNTY FLOOD CONTROL DISTRICT WORK SUMMARY

Since Congressional Authorization of the SARP in 1986 the OCFCDD, as the Local Sponsor has performed substantial land acquisitions and relocations as part of its participation. To date, the OCFCDD has expended about \$105 million on the SARP. This work along with the U.S. Army Corps of Engineers work is summarized below.

LOWER SANTA ANA RIVER

The U.S. Army Corps of Engineers has completed approximately 12 miles of channel improvements from the River's ocean outlet to the City of Orange. For project mitigation, over 92 acres have been designated as marshland restoration areas. The Talbert Channel outlet has been relocated a thousand feet up the coast to provide for a wider Santa Ana River outlet. A

new bridge was completed over the relocated Talbert Channel to restore State Beach parking lost when the new outlet was installed

The OCFCD has also initiated preparation of the Santa Ana Canyon Habitat Management Plan and is working with the U.S. Army Corps of Engineers on the development of a recreation plan to increase recreational use of the Santa Ana River Trail. The OCFCD has been pushing ahead to help the U.S. Army Corps of Engineers expedite the Lower Santa Ana River construction schedule by acquiring over 112 acres of rights-of-way and arranged for the relocation of over 60 utility lines and 15 oil wells. The Pacific Coast Highway Bridge in Newport Beach, the Hamilton-Victoria Bridge in the Cities of Costa Mesa and Huntington Beach, Harbor Blvd. Bridge in Santa Ana and Katella Avenue Bridge in the city of Anaheim have been widened to 8-lanes and lengthened to accommodate the widened Santa Ana River.

SEVEN OAKS DAM

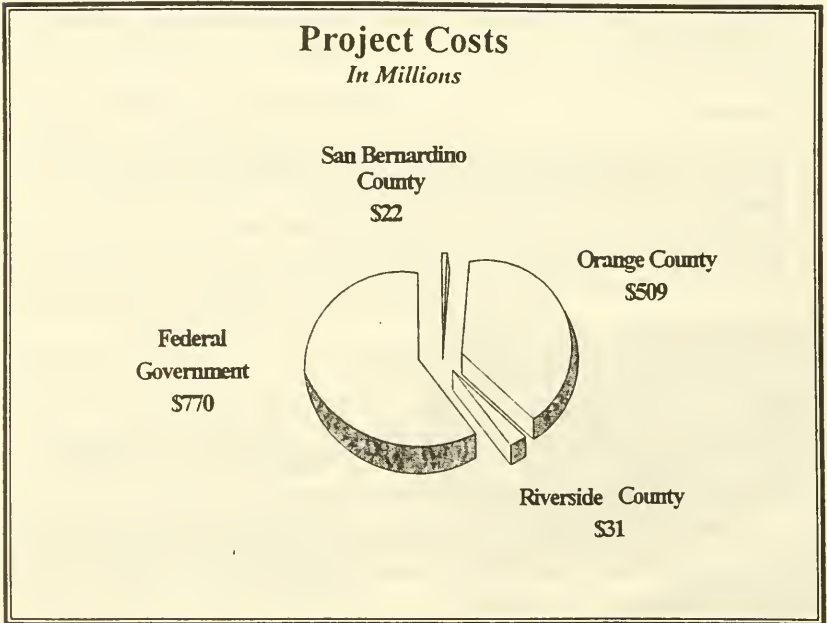
The U.S. Army Corps of Engineers has completed construction on the intake structure, gate chamber and diversion tunnel. Construction on the dam embankment, outlet works, cofferdam, approach channel and access roads are under way. Southern California Edison has completed the relocation of transmission towers. Local Sponsors have acquired possession of 1,536 acres for project mitigation and an additional 1,364 acres for borrow sites, haul roads and dam site. They have also initiated development of a mitigation lands management program to facilitate protection and propagation of an endangered species. The OCFCD and the Southern California Edison Company have arranged the relocation of a hydroelectric plant and related flume out of the new Seven Oaks Dam reservoir area.

PRADO DAM

OCFCD has initiated a program for acquisition of about 400 parcels under 260 ownerships. Survey and right-of-way engineering are underway; hardship claim procedures have been established and two hardship properties have been acquired. Preparation of plans for the relocation of State Route 71 is under way to prepare for the U.S. Army Corps of Engineers 1997 construction start.

E. PROJECT COSTS

The cost of the SARP is currently estimated by the U.S. Army Corps of Engineers to be \$1.333 billion. Allocations of project costs amongst the Federal Government and the Local Sponsors is illustrated by the chart below.



PREPARED STATEMENT OF DONALD J. MARTINSON, EXECUTIVE DIRECTOR,
SANTA ANA RIVER FLOOD PROTECTION AGENCY

Honorable Pete V. Domenici, Chairman
United States Senate
Committee on Appropriations
Subcommittee on Energy and Water Development

Subject: Santa Ana River Mainstem

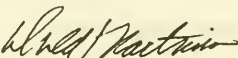
The Santa Ana River Flood Protection Agency (SARFPA) represents eighteen cities and three special districts within the flood plain of the Santa Ana River in Orange County. The citizens of this area are very concerned about their safety and well-being because of the potential flood threat from the Santa Ana River.

It has been well documented by the U. S. Corps of Engineers that property damage could amount to \$15 billion and loss of life could approach 3,000 lives during a major storm event. This disaster would be far greater than the recent Mississippi River flood.

Citizens of Orange County thought they had a high level of protection by the construction of Prado Dam after the major flood of 1938. However, since the construction of that dam in the 1940's, the level of protection provided by this facility has seriously deteriorated because of upstream development and the accumulation of sediment and vegetation within the reservoir area.

The continued construction of the Santa Ana River Mainstem Project is essential to prevent the occurrence of a major disaster, and your continued support is requested.

Respectfully submitted,


Donald J. Martinson
Executive Director

LETTER FROM MARSHA TUROCI, CHAIRMAN, FIRST DISTRICT, COUNTY OF
SAN BERNARDINO, CA

United States Senate
Chairman, Committee on Appropriations
Subcommittee on Energy and Water Development
Washington, D.C.

Attention: Senator Pete V. Domenici

Dear Chairman Domenici:

The Board of Supervisors of San Bernardino County, State of California, appreciates the opportunity to bring the following flood control and water conservation projects to your attention for consideration in the FY 1995-1996 Federal Budget.

A Corps of Engineers

- | | | |
|----|--|------------|
| 1. | <u>Santa Ana River Mainstem</u>
Construction of Seven Oaks Dam, Lower Santa Ana River
and San Timoteo Creek. | 70,249,000 |
| 2. | <u>Seven Oaks Dam Water Conservation Study</u>
Continue Conservation Feasibility Study. | 265,000 |
| 3. | <u>San Antonio Creek</u>
Complete reconnaissance study and initiate feasibility study
of flood control. | 350,000 |

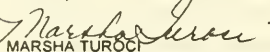
- 4 Mission Zanja Creek 300,000
Conduct a feasibility study and initiate design of an inlet expansion plan.

B Bureau of Reclamation

- 1 San Sevaine Creek Water Project 250,000
PL84-934 Small Watershed Project Loan Program
Add 250,000 to recommended FY 1995-1996 fiscal budget to start federal participation on project.

The Board once again wishes to express its deep appreciation for your past and present support of these priority programs in San Bernardino County and also Orange and Riverside Counties.

Sincerely,


MARSHA TURÓCI
Chairman
Supervisor, First District

SANTA ANA RIVER MAINSTEM PROJECT

Project Description

The Santa Ana River Project includes seven interdependent features. Mill Creek Levee, Oak Street Drain, and Reaches 1, 2, 3, 4, and 10 of the Lower Santa Ana River are complete. Additionally, the completion of Seven Oaks Dam, San Timoteo Creek, Prado Dam, Santiago Creek and the Lower Santa Ana River features will provide (a) the necessary flood protection from the standard project overflow within Orange, Riverside and San Bernardino Counties; (b) enhancement and preservation of marshlands and wetlands for endangered waterfowl, fish and wildlife species; (c) recreation amenities; and (d) flood plain management of the 30 miles of Santa Ana River between Seven Oaks Dam and Prado Dam. The Mainstem project is scheduled for completion by the year 2001.

San Bernardino County Features Status

Seven Oaks Dam: Intake structure excavation, Abutment stripping and Outlet Works/Diversion Tunnel contract is complete. Embankment and Spillway construction contract was awarded in March 1994.

Mill Creek Levee: Project was completed in April 1992.

San Timoteo Creek: San Timoteo Creek/Phase I was awarded in September 1994. Construction will begin in March 1995. Advertisement for construction bids for Phase II will be in June 1995.

Funding Required

To continue construction of the Mainstem Project in FY 1995/96, the Corps of Engineers will require \$85,749,000 (\$12,000,000 carry over from FY 94/95 + \$70,249,000 Budget for FY 1995/96) in federal funding along with cash contributions of \$3,500,000, lands, and various services from local sponsor.

PROJECT AUTHORIZED: Public Law 94-587, Section 109, Approved October 22, 1976
Public Law 99-662, Water Resources Development Act of 1986

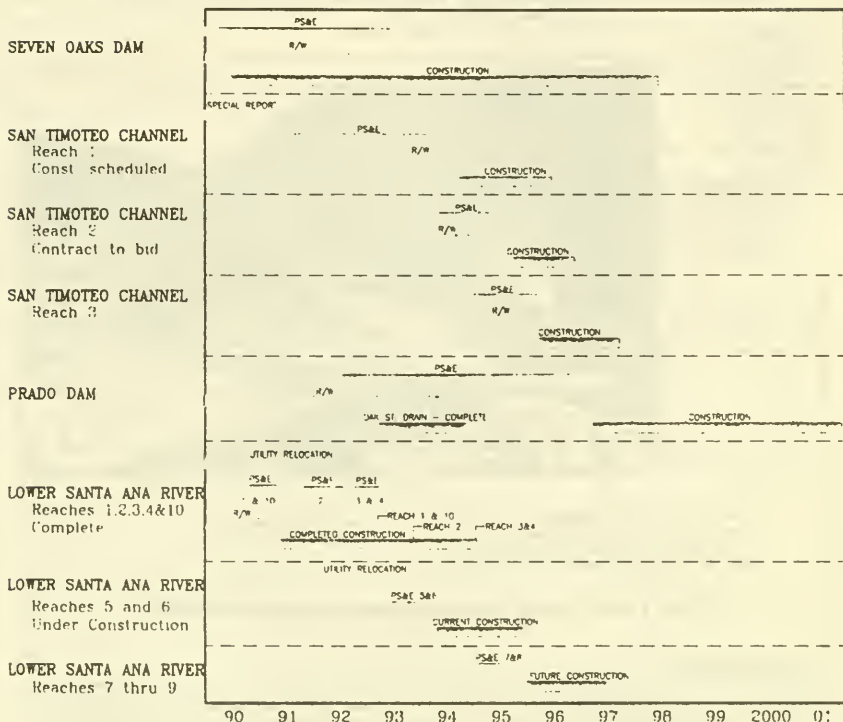
TOTAL PROJECT COST: \$1.4 billion - Includes \$473 million local share

PRESIDENT'S BUDGET REQUIREMENT Fiscal Year 1995/96: \$70,249,000

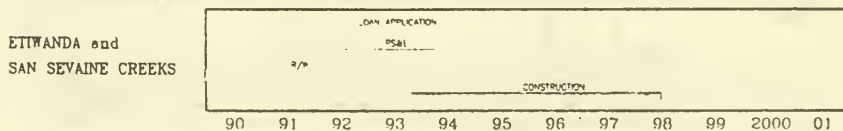
The State of California Water Commission recommended continued support of this project on March 3, 1995.

REQUESTED ACTION: Approval of \$70,249,000 for Santa Ana River Mainstem, including Seven Oaks Dam and San Timoteo Creek projects in San Bernardino County.

SANTA ANA RIVER MAINSTEM CONSTRUCTION SCHEDULE



SAN SEVAINE CREEK WATER PROJECT CONSTRUCTION SCHEDULE



<u>SAN BERNARDINO COUNTY:</u>		REQUIRED FUNDING
<u>FEATURE</u>	<u>ACTIVITY</u>	<u>FY 95/96</u>
SEVEN OAKS DAM	Construction, engineering and design; project management	\$ 50,304,000
SAN TIMOTEO CREEK CHANNEL	Engineering, design plans and specifications, continue construction (includes \$12 million FY 94/95 Carryover)	\$ 17,000,000
<u>ADDITIONAL DOWNSTREAM FEATURES:</u>		
LOWER SANTA ANA RIVER (Marshland and channels)	Fish and wildlife facilities, construction; engineering and design	\$ 18,445,000
S.A.R. MAINSTEM PROJECT	Required Project Funds	\$ 85,749,000
	Non-federal contribution (required in addition to LERRD's)	\$ 3,500,000
	FEDERAL CONTRIBUTION	\$ 82,249,000
	Less FY 94/95 carryover	\$ -12,000,000
REQUIRED F.Y. 95/96 FUNDS FOR SANTA ANA RIVER MAINSTEM		\$ 70,249,000

The base of the planned intake tower, visible below the bench cut rock face, is located at the upstream end of the outlet works.

To the east of the dam, the spillway will pass flows before they lap the completed 555' high earth dam structure. The excavation site is visible above Warm Springs Road.



Temporary channel takes low flows past the collar dam into the outlet works.

Protects the main embankment from upstream flows, and dewaterers via a series of pumps which discharge into the approach channel.

Construction has begun on the foundation of the dam.

SEVEN OAKS DAM WATER CONSERVATION STUDY

Project Background

Storms of the early 1900's, which caused severe flooding in Southern California, sparked the beginning of flood control efforts in that region. Federal, State and local response to these events resulted in legislation to regulate and direct project construction for the protection of the growing communities of the southern counties. Prado Dam and Basin, located in the Counties of San Bernardino and Riverside, was the first project constructed to control flooding in the lower Santa Ana River area of Orange County. Prado Dam was completed in 1940.

Over the years water conservation has become increasingly important to agricultural and urban interests. Prado Dam and Basin has functioned for many years as both a conservation and flood control facility. A conservation study recently completed by the Corps of Engineers investigated the benefits and impacts of maximizing water conservation at Prado under current conditions, that is, prior to dam and reservoir enlargement. Under that study the Los Angeles District of the U.S. Army Corps of Engineers recommended allowing the non-flood season water conservation pool to rise from the current elevation of 490 feet mean sea level to elevation 505 feet.

Project Description

In 1992, the Seven Oaks and Prado Dams Water Conservation Study was completed. A determination from that reconnaissance study concluded that no additional authority was required for an operational modification to Prado Dam for a change in seasonal water conservation. The feasibility phase for water conservation at Seven Oaks Dam started in November 1993 and is the focus of this request for continued funding.

The Seven Oaks Dam Water Conservation Study, Feasibility Phase, will concentrate on the viable water conservation alternatives described in the reconnaissance study. The Feasibility Study will include the following tasks: 1) public involvement; 2) environmental studies; 3) hydrologic studies; 4) geotechnical studies; 5) study management; 6) institutional studies; 7) plan formulations; 8) economic study; 9) design studies; 10) survey and mapping; 11) cost estimates; 12) Fish & Wildlife studies; 13) recreation studies; 14) cultural resources studies; 15) real estate studies; 16) report preparations; and 17) review.

The study progress and intermediate results will be reviewed and approved on a quarterly basis.

Funding Request

For the continuation of this study in FY 1995/96, the San Bernardino County Flood Control District requests the appropriation of \$265,000 as the estimated budget.

The California Water Commission recommended support of this study on March 3, 1995, in the amount of \$265,000.

REQUESTED ACTION: Approval of \$265,000 to conduct a feasibility study to assess physical, fiscal, environmental and public impacts of a water conservation program for the Seven Oaks Dam.

SAN ANTONIO CREEK CHANNEL RECONNAISSANCE STUDY

Project Description - The San Antonio Creek Channel was constructed by the Corps of Engineers in the 1950's. Its watershed encompasses an area of approx. 89 sq. miles at the western border of San Bernardino County. Most of this channel is concrete lined or improved with rock slope protection. Approximately one-third of the primarily undeveloped watershed is tributary to the San Antonio Dam, which is located about 11 mi. downstream from the headwaters of the watershed.

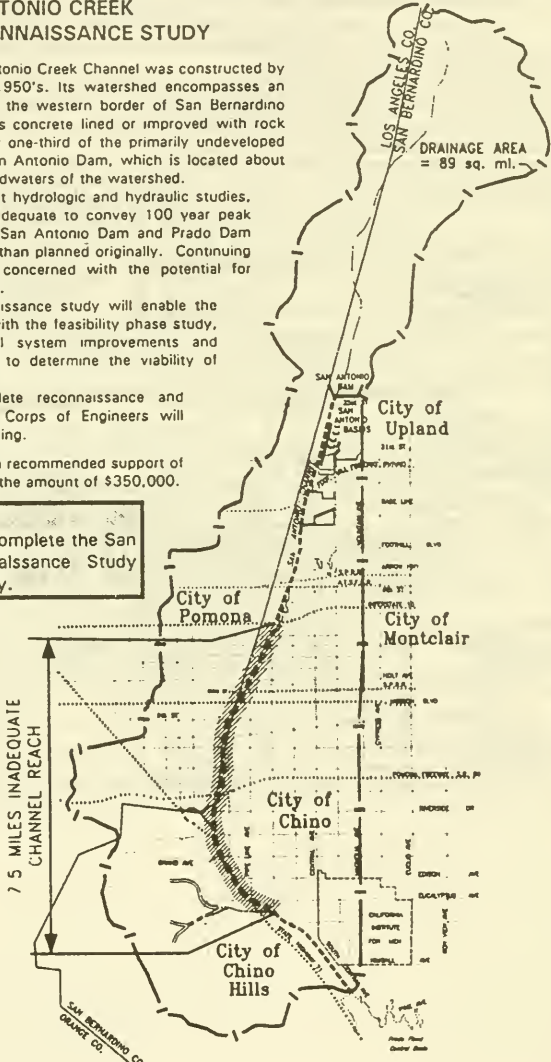
Current Status - Based on recent hydrologic and hydraulic studies, the existing channel may be inadequate to convey 100 year peak flows. The watershed between San Antonio Dam and Prado Dam has developed more extensively than planned originally. Continuing development has local entities concerned with the potential for breakouts of the existing channel.

Purpose - A completed reconnaissance study will enable the Corps of Engineers to proceed with the feasibility phase study, develop alternatives for overall system improvements and perform a cost-benefit analysis to determine the viability of further Federal participation.

Funding Required - To complete reconnaissance and initiate a feasibility study, the Corps of Engineers will require \$350,000 in Federal funding.

The California Water Commission recommended support of this study on March 3, 1995, in the amount of \$350,000.

REQUESTED ACTION: Approval of \$350,000 to complete the San Antonio Channel Reconnaissance Study and initiate Feasibility Study.



MISSION ZANJA CREEK STUDY

Project Background

Mission Zanja Creek, also known as the Mill Creek Zanja and Mission Storm Drain, was originally built by native American Indians under the direction of Franciscan Padres as a ditch for water supply in 1819. The water diverted from Mill Creek supported the San Bernardino Asistencia and surrounding farms and ranches. The 12-mile-long ditch, which terminates at the Santa Ana River, essentially follows the same course today that the Indians carved out over 170 years ago. As the area has developed and the water supply technology changed, the use of the Zanja has changed from water supply to a flood control and drainage channel.

Flows in Mission Zanja Creek originate in the Crafton Hills east of Redlands, and traverse westerly through the cities of Redlands, Loma Linda, and San Bernardino to the Santa Ana River. The drainage basin is shaped like a half circle with a length of about 12 miles and an average width of about three miles. The total drainage area is about 25 square miles.

Project Description

The reconnaissance study, completed in February 1994, considered the past work performed by the Corps of Engineers and expanded that effort to include the entire upper and lower ends of the drainage area not previously studied. Two features of this study, the Reservoir Canyon detention basin and expanded (modified) inlet, appear to be economically justified and warrant further study.

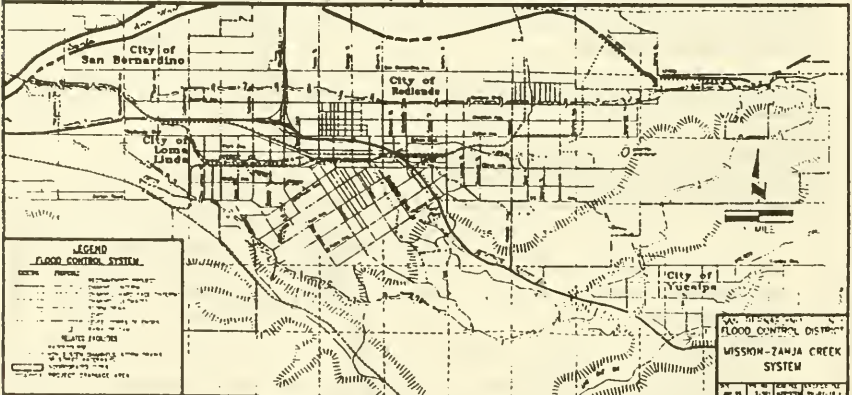
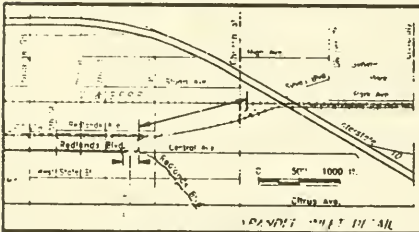
Funding Required

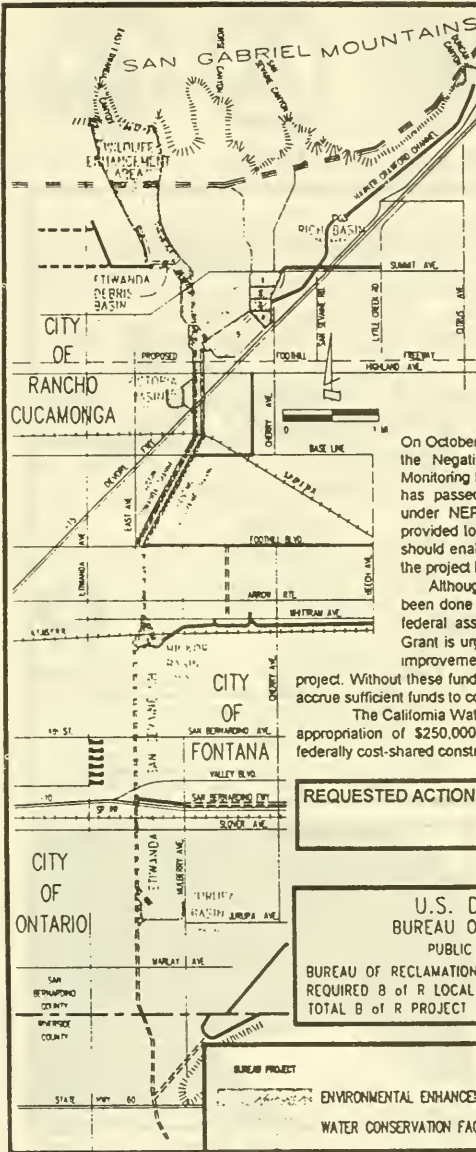
The Expanded Inlet Plan is estimated at \$1,285,000 while the cost of the Reservoir Canyon Detention Plan is estimated at \$4,890,000. The Corps of Engineers will require \$300,000 to conduct feasibility study and initiate design of an inlet expansion plan for flood control under Section 205 of the Flood Control Act of 1948.

The California Water Commission recommended support of this study on March 3, 1995, in the amount of \$300,000.

REQUESTED ACTION:

Approval of \$300,000 for feasibility study on detention basin and channel inlet features. Support funding of Continuing Authorities Program





Project Description:

The San Sevaline Creek Water Project, as proposed, will provide environmental enhancements, water conservation and flood control facilities in the western portion of the San Bernardino County.

A 98-acre site is being set aside to protect a sensitive plant community and wetlands and provide wildlife enhancement. In addition, several water conservation basins will percolate an estimated 25,000 acre-feet of storm water runoff per year into the Chino Groundwater Basin benefiting agricultural, municipal and water users in the Valley. This project will create water storage and conservation facilities which will provide approximately 4341 acre-feet of benefit and help reduce the need for purchasing water.

Project Status:

On August 23, 1994, the Initial Study required under CEQA was filed for public comment.

On October 25, 1994, the County Board of Supervisors certified the Negative Declaration under CEQA and the Mitigation Monitoring Plan. The appeal period for challenges to that action has passed. The Draft Environmental Assessment required under NEPA and the Draft Loan Application Report were provided to the Bureau on August 18, 1994. These documents should enable the Bureau to complete its reviews and process the project loan and grant under the SRPA.

Although some levee, channel and interim basin work has been done at various locations on this major drainage system, federal assistance in the form of a Small Project Loan and Grant is urgently needed to allow for the construction of major improvements that will provide a fully integrated and functional project. Without these funds it will be many decades before local interests can accrue sufficient funds to continue this vital project.

The California Water Commission recommended on March 3, 1995, an appropriation of \$250,000 be included in the FY 1995/96 budget to start federally cost-shared construction of the project.

REQUESTED ACTION: Approval of \$250,000 for FY 1995/96 to start federal participation on the San Sevaline Creek Water Project.

**U.S. DEPARTMENT OF INTERIOR
BUREAU OF RECLAMATION SMALL PROJECT
PUBLIC LAW 84-984 AS AMENDED (SRPA)**

BUREAU OF RECLAMATION GRANT CONTRIBUTION	\$34,000,000
REQUIRED B of R LOCAL CONTRIBUTION LOW INTEREST LOAN	\$17,900,000
TOTAL B of R PROJECT	\$51,900,000

SAN BERNARDINO COUNTY

**SAN SEVALINE CREEK
WATER PROJECT**



A Cooperative Effort

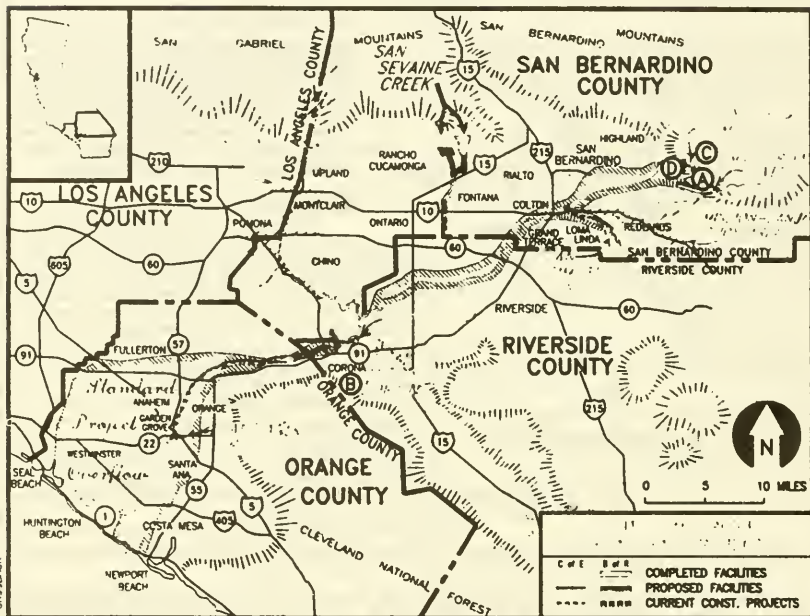
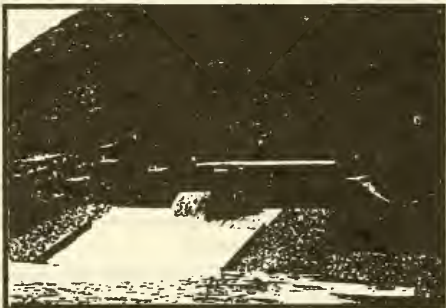


Photo locations from front cover shown on map above

- (A) Clearing of core contact surface of left abutment.
- (B) Completed Oak Street Drain portion of SAR Mainstem in Riverside County
- (C) Temporary approach channel and tower base for intake structure; Side pipe drains sump below coffer dam.
- (D) Placement of rock toe, downstream side of main embankment.



Discharge from outlet works during Jan 1995 storms

PREPARED STATEMENT OF JOHN TAVAGLIONE, CHAIRMAN, RIVERSIDE
COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

BOARD OF SUPERVISORS

RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

RESOLUTION NO. F95-11

SUPPORTING FEDERAL APPROPRIATIONS
FOR FLOOD CONTROL PROJECTS FOR FISCAL YEAR 1996

WHEREAS, the United States House of Representatives Committee on Appropriations, Sub-Committee on Energy and Water Development, and the United States Senate Committee on Appropriations, Sub-Committee on Energy and Water Development are holding hearings on March 29, 1995 to consider appropriations for Flood Control and Reclamation Projects in California for Fiscal Year 1996; and

WHEREAS, the Riverside County Flood Control and Water Conservation District (District) supports the continuation of construction of the Santa Ana River Mainstem project, the continuation of the feasibility studies of the flooding and bank destruction along the Santa Ana River at Norco Bluffs, California and the feasibility studies for flood control in the Whitewater River Basin in Riverside County, California; now, therefore,

BE IT RESOLVED by the Board of Supervisors of the Riverside County Flood Control and Water Conservation District in regular session assembled on March 14, 1995, that they support appropriations by Congress for Fiscal Year 1996 for the following projects:

U.S. ARMY CORPS OF ENGINEERS

General Investigations and Surveys Santa Ana River at Norco Bluffs	\$375,000
Whitewater River Basin, California	\$370,000
Construction - General Santa Ana River Mainstem	\$70,249,000

BE IT FURTHER RESOLVED that the General Manager-Chief Engineer is directed to distribute certified copies of this resolution to the Secretary of the Army, Members of the House of Representatives Committee on Appropriations and Sub-Committee on Energy and Water Development, the Senate Committee on Appropriations and Sub-Committee on Energy and Water Development, and the District's Congressional Delegation - Senators Diane Feinstein and Barbara Boxer, and Congressmen Ron Packard, Ken Calvert and Sonny Bono.

KLE:seb

rcfc\1453

Roll Call:

Ayes: Buster, Tavaglione, Cenicerros, Wilson and Mullen
Noes: None
Absent: None

The foregoing is certified to be a true copy of a resolution duly adopted by said Board of Supervisors on the date therein set forth.
GERALD A. MALONEY Clerk of said Board
By: Gailan Deputy

SANTA ANA RIVER - MAINSTEM

The Water Resources Development Act of 1986 (Public Law 99-662) authorized the Santa Ana River - All River project which includes improvements along the river in Orange County, enlargement of Prado Dam and Reservoir near Corona, California, construction of a new dam (Seven Oaks) near the entrance to Santa Ana Canyon, improvement of the Oak Street Drain Channel in Corona, California, improvement of Santiago Creek in Orange County and various mitigation features as set forth in the Chief of Engineers' Report to the Secretary of the Army. The Boards of Supervisors of Orange, Riverside and San Bernardino Counties are in support of this needed project and have so stated in past resolutions to Congress.

The Local Cooperation Agreement (LCA) was signed in December 1989 by the three local sponsors and the Army. Construction started on the Seven Oaks Dam in the Spring of 1990. The embankment construction started in the Summer of 1994. The Seven Oaks Dam will take about seven years to complete. Acquisition has been completed on enhancement lands near the mouth of the river channel and the local sponsors have acquired lands, easements, rights of way and disposal areas for Seven Oaks Dam and commenced acquisition for other elements of the project. Construction has been completed on the Oak Street Drain element. The Mill Creek element has been completed. Construction has been completed on two reaches of the lower Santa Ana River Channel and continues on four other reaches. The President has recommended that 70.24 million dollars be appropriated in FY1996 to continue this important project.

We support the President's request for 70.24 million dollars for the Santa Ana Mainstem construction and urge the Committee to approve the funds in the Fiscal Year 1996 appropriations.

SANTA ANA RIVER AT NORCO BLUFFS

The Santa Ana River passes along the northerly border of the City of Norco. Norco is situated on a bluff that forms the left bank of the river. The bluff varies in height from 46 to 96 feet above the streambed.

The floods of January and February 1969 along the Santa Ana River caused impingement of the river bank, undermining the toe of the slope causing sloughing of the bank. Approximately 50 to 60 feet of the bluff retreated to the south. No improvements were lost at that time but the threat to improvements from future river actions became apparent. The floods of 1978 and 1980 impinged further, causing another 30 to 40 feet of retreat of the bluff. One single family residence was undermined and destroyed because of this damage.

A provision in the Water Resources Development Act of 1990, PL 101-640, directed the Secretary of the Army to conduct a study of the feasibility of improvements along the Santa Ana River at Norco Bluffs to prevent further damage to the bluffs by the river.

The Corps found sufficient justification to proceed with a feasibility study in their reconnaissance study. A cost shared study agreement has been executed by the Corps and the District and the study is well underway. The total feasibility study costs are estimated to be 1.85 million dollars. Congress has appropriated \$550,000 to date for this study. We are requesting Congress to appropriate \$375,000 in

FY1996 to provide sufficient Federal funding along with an equal share of funding from the local sponsor to complete the feasibility study in FY1996. The Riverside County Flood Control and Water Conservation District has funding available for its share of the cost of the feasibility study.

We request the Committee to approve \$375,000 in Fiscal Year 1996 appropriations to complete the feasibility study of the Santa Ana River at Norco Bluffs at Norco, California.

WHITEWATER RIVER BASIN

The Whitewater River, as it flows through the Coachella Valley area of Riverside County, California, cannot contain large flood flows within its banks and thus can cause extensive damage in the event of a large flood. This area of Riverside County is experiencing rapid development. The river passes through the Cities of Palm Springs, Cathedral City, Rancho Mirage, Palm Desert and Indio on its way to the Salton Sea.

In 1989, the House Committee on Public Works and Transportation, Subcommittee on Water Resources adopted a resolution authorizing a study of the Whitewater River Basin in the Coachella Valley.

A Reconnaissance Study has established certain feasible flood control projects in the Whitewater River Basin. A cost shared feasibility study commenced during FY1994. The President has requested \$370,000 to continue this feasibility study in FY1996.

We support the President's request for \$370,000 to continue feasibility studies for projects in the Whitewater River Basin, Riverside County, California and urge the Committee to approve the funds in the Fiscal Year 1996 appropriations.

PREPARED STATEMENT OF GAYE LOPEZ, SECRETARY/ADMINISTRATOR, COLUSA BASIN DRAINAGE DISTRICT

REQUEST FOR FEDERAL U.S BUREAU OF RECLAMATION APPROPRIATION

COLUSA BASIN DRAIN (CWC NO.621)

FY 1996 Request: \$ 750,000

My name is Gaye Lopez. I am Secretary/Administrator of the 650,000 acre Colusa Basin Drainage District, located on the west side of the Sacramento River, which serves a large watershed exceeding one million acres, comprised of 21 smaller watersheds. It covers three counties--Glenn, Colusa and northern Yolo. It not only is a rich agricultural area, but a rich wildlife area as well, including three national wildlife refuges. A cooperative, integrated approach to watershed management will allow water-related projects to meet multiple needs within the watershed.

The District has just completed ranking the 21 watersheds within the Basin, to define areas where it is most feasible to achieve the District's goals to: (1) provide flood and drainage water protection for urban and agricultural interests; (2) capture surface or stormwater for conservation, conjunctive use and increased water supplies; (3) assist in groundwater

recharge efforts to alleviate overdraft and land subsidence; and (4) improve and enhance opportunities for wetland and riparian habitats and (5) protect agricultural production.

This year, abnormally heavy rainfall caused massive flooding. Increasing the Flood control capabilities would not only help mitigate widespread damages from such events, but would allow flood waters to be converted into a usable water supply for the District as well as for other areas of the state.

By taking the peak flood flows off streams and small natural tributaries and diverting them to areas with gravel strata, groundwater recharge and enhancement will occur. By constructing small diversions to create small reservoirs and stock ponds, doing streambed restoration work, creating wetlands, putting in streambank plantings, and by initiating voluntary, on-farm management practices, everyone benefits. Cattle ranchers are expected to have more water and grass for a longer season, which means greater profits, Soil erosion is prevented. Wildlife habitat is provided. Chemical nutrients are degraded. And the water quality of the Sacramento River and its tributaries is improved.

The District has initially selected three watersheds where projects will be developed to serve as a demonstration for integrated resources management. The key immediate tasks include feasibility-level analyses of hydrologic, hydrogeologic, geophysical, natural resources and environmental issues; facility options and operations; and economic feasibility.

The requested \$750,000 funding will assist the District with costs associated with pre-project development and design for construction of the conjunctive use demonstration projects. The congressional add-on of \$100,000 which was appropriated in 1994 was very much appreciated.

PREPARED STATEMENT OF CENTRAL VALLEY PROJECT RESTORATION FUND ROUNDTABLE

Mr. Chairman and Members of the Subcommittee:

In August of 1994, a diverse stakeholder group interested in the future health of California's Central Valley watershed and the San Francisco Bay/Sacramento-San Joaquin Delta convened a Roundtable with the goal of reaching consensus on management of and priorities for the user-financed Restoration Fund created by the Central Valley Project Improvement Act (CVPIA) of 1992.

Having reached a consensus, the Restoration Fund Roundtable--composed of farm, urban, hydropower, business, environmental, and conservation interests--offers this statement in support of funding for our jointly-developed priorities for the CVP Restoration Fund and associated Energy and Water Development appropriations for the 1996 fiscal year. Based on the President's FY96 budget request, these include a total of \$31.83 million for the Shasta Temperature Control Device (TCD), \$6.00 million for the screening of unscreened diversions, and \$25.00 million for water and land acquisitions and water conveyance for the Central Valley's fish and wildlife resources.

We would also like to use this statement to explain further the basis for our support of these requests, and to highlight our concerns and ongoing efforts regarding the assumed provision of non-federal funds, including, in particular, \$20.00 million from California as a cost-share contribution for the Shasta TCD.

Shasta Temperature Control Device The President's budget includes a total of \$31.83 million under the authority of section 3406(b)(6) of the CVPIA for ongoing construction work on the Shasta TCD. Of this amount, \$11.28 million would be derived from the CVP Restoration Fund, while \$20.55 million would be derived from other sources, including some \$20.00 million in cost-share contributions from the State of California. The President's budget notes that, absent receipt of a commitment from the State by March 31, 1995 to provide such funds during FY96, a list of offsets will be identified for reduction in order to ensure the payment of contract costs incurred for the Shasta TCD.

While the overall request for the Shasta TCD approaches the Roundtable's October 7, 1994 recommendation to Secretary Babbitt for \$37 million in FY96, we are extremely concerned that it will not be possible for the State to make the necessary funding commitments within the time period allowed. This could jeopardize both existing contractual commitments as well as construction work now underway on the Shasta TCD, and/or the implementation of other priority measures which are now included as part of the budget request. As the Roundtable works to secure State cost-share funding for the CVPIA as a whole (see, e.g., our comments on *State Cost Sharing* below), we urge the Congress to ensure that any portion of the \$20.00 million in TCD cost-share funding that cannot be provided by the State in FY96 be provided instead through the aforementioned budgetary offsets.

Screening of Unscreened Diversions The budget request includes a total of \$6.00 million to be derived from regular Agency appropriations under the authority of section 3406(b)(21) of the CVPIA for constructing screens on unscreened diversions, rehabilitating existing screens, replacing existing non-functioning screens, and relocating diversions to less fishery-sensitive areas. The Roundtable supports this request, although it is significantly less than the \$10 million we originally requested in our October 7, 1994 letter to Secretary Babbitt. Our current recommendation is based on the considerable pressures now facing the Bureau of Reclamation budget, as well as provisions of the December, 1994 *Principles for Agreement on Bay-Delta Standards* (hereinafter "the Bay-Delta Accord") which establish a very high priority for the screening of unscreened diversions through "Category III" funding.¹

Consistent with our earlier request, we would like to make the following additional points, emphasizing that many diverters (and, indeed, many in our Roundtable) are already working with state and federal agencies to develop programs which resolve the following concerns:

First, to more effectively utilize scarce economic resources and to best protect both fishery resources and water supplies, biological priorities should be established for the hundreds of unscreened diversions in the Sacramento and San Joaquin Valleys and for the more than 1,300 unscreened diversions in the Delta;

Second, to accomplish this objective, a well-coordinated, multi-agency program is needed. This program should work closely with affected stakeholders and interests, and should offer technical advice as well as research-, funding-, and streamlined permitting assistance;

Finally, a companion "assurances" program, appropriately structured, would help to secure cooperation and partnership funding from those directly affected. Under such a program, in exchange for private-sector funding, diverters would be protected from having to pay for significant modifications to approved projects over a set period of time should problems arise due to new species listings or other previously unforeseen circumstances. (Such assurances would be analogous to the "shelf life" provisions of the Bay/Delta Accord.)

¹ As part of the Bay/Delta Accord, the parties agreed that water-quality standards would have to be supplemented by non-flow measures (e.g., fish screens) in order to achieve comprehensive protections. The parties committed to fund and implement these so-called "Category III" measures with an estimated \$60 million/year in new and re-prioritized funds for each of the next three years.

Water and Land Acquisitions and water Conveyance The President's budget includes a total of \$17.12 million to acquire water and land under the authority of sections 3406(b)(3) and 3408(h) of the CVPIA, to be derived solely from the Restoration Fund. In addition, approximately \$7.93 million is proposed under the authority of section 3406(d) of the CVPIA for planning, construction, and conveyance of refuge water supplies. Of this amount, \$5.68 million will be derived from the Restoration Fund, and the remaining \$2.25 million from regular Agency appropriations. These amounts are substantially in accordance with our October 7, 1994 request to Secretary Babbitt, including approximately \$16 million "for willing-seller based land, water, and habitat acquisitions" and \$8 million "for the conveyance and wheeling of ... water supplies to Central Valley refuges and wildlife habitat areas."

The Roundtable supports the President's FY96 request based on our belief that the CVPIA's water and land acquisition provisions, when properly implemented, will provide significant ecological benefits (including drainage and flood control) throughout the Central Valley while minimizing economic and social impacts to water users and landowners alike. Consistent with our request to Secretary Babbitt, the Roundtable believes that acquisitions should be undertaken in accordance with the restoration priorities identified as part of the supplemental CVPIA water acquisition program now being developed, with the goal of securing the greatest ecological benefit(s) consistent with the purposes of that Act.

To this end, funds provided under the above authorities in FY96 should be fully coordinated with other CVPIA programs and authorities (including the Act's water transfer provisions) in the Sacramento, San Joaquin, and Delta-estuary regions to ensure that the broadest possible array of alternatives (e.g., purchases, leases, options, and easements) is used. The Roundtable is committed to working with the Service, Reclamation, and others to develop appropriate criteria to guide the overall acquisition program, including the systematic evaluation of restoration priorities as discussed further below.

With respect to the planning, construction, and conveyance of refuge water supplies, we urge that full consideration be given to the use of long-term compensated wheeling agreements where substantially equivalent environmental benefits can be assured for lesser overall cost. (Where appropriate and feasible, the acquisition of available capacity may be significantly cheaper than the construction of new canals or pipelines.) As explained further below, we also hope that the State of California will be able to meet a portion of its cost-share commitments by financing, crediting, or otherwise providing available capacity through State Water Project facilities in lieu of federal reimbursements for the use of such capacity. The savings associated with these and other measures could then be used as needed to supplement Shasta TCD funding, or to implement other high-priority restoration measures not specifically addressed herein.

State Cost Sharing In January of this year, the Roundtable wrote to Governor Pete Wilson of California urging the inclusion of CVPIA cost-share funding as part of the Administration's efforts to implement the Bay-Delta Accord, including the State's share of funds associated with that Agreement's Category III commitments. Currently, we are trying to arrange a Roundtable briefing for key state legislators in May in an effort to gain support for a variety of alternative cost-share possibilities, including, at least potentially, a recently-introduced package of Bay-Delta restoration bond funding measures. In addition, we are working on a number of ideas that could generate significant savings in anticipated federal outlays through (e.g.) provision of conveyance capacity and other contributions in kind.

Nevertheless, as noted above, the Roundtable remains greatly concerned that the \$20.00 million in state cost-share funding assumed as part of the President's budget request for the Shasta TCD is unlikely to materialize within the time frame allowed. Consistent with the directive contained in the 1995 Energy and Water Appropriations Act report, we respectfully request that sufficient federal funds be provided in FY96 to supplement those provided through the Restoration Fund to keep the Shasta TCD "on track" irrespective of the level of state cost-share contributions actually realized in FY96. We, in turn, will continue our efforts to secure the state funds needed to meet the objectives of the June 27, 1994 *Sharing*

of Costs Agreement for Mitigation Projects and Improvements between the State of California and the United States, as well as the financial commitments made as part of the Bay/Delta Accord.

Future Roundtable Efforts and Funding Priorities The 1995 Energy and Water Appropriations Act report directed the U.S. Fish and Wildlife Service to develop, by March of 1995, a report which details current priorities for funding under the CVPIA, including, as best as can presently be determined, "the anticipated biological benefit of each recommended action." After reviewing an early draft of the subject report, the Roundtable asked the Service to take additional time to provide a number of important details, and to undertake additional consultations with affected stakeholders and interests. Our hope is to ensure that expenditure priorities under the CVPIA (and especially those involving the Restoration Fund) are focused on activities that provide direct restoration benefits, and that such priorities and programs are coordinated with those of others (including Reclamation and Category III interests). The Service agreed to our request, and a detailed Restoration Fund Priorities Briefing has now been scheduled for Wednesday, March 29, 1995, in Sacramento.

In the months and years ahead, the Restoration Fund Roundtable will work with the Service, Reclamation, and other agencies and interests to ensure that the completed priorities report is useful, accurate, and widely embraced. We look forward to working with you, and with other members and committees of the Congress, in continued efforts to reach our stated goals and objectives.

This concludes our written statement. If you would like to know more about the CVP Restoration Fund Roundtable, receive copies of our letters, or have questions specific to this statement, please contact David Yargas of the Environmental Defense Fund (510-658-8008) or Jason Peltier of the Central Valley Project Water Association (916-448-1638), who will gladly direct your inquiries to the appropriate Roundtable member(s). Thank you very much.

Respectfully submitted,

Member Organizations,

Central Valley Project Restoration Fund Roundtable

BANK OF AMERICA
 CALIFORNIA FARM BUREAU FEDERATION
 CALIFORNIA RICE INDUSTRY ASSOCIATION
 CALIFORNIA WATERFOWL ASSOCIATION
 CENTRAL VALLEY PROJECT WATER ASSOCIATION
 DUCKS UNLIMITED
 EAST BAY MUNICIPAL UTILITY DISTRICT
 ENVIRONMENTAL DEFENSE FUND
 METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
 NATURAL HERITAGE INSTITUTE
 NORTHERN CALIFORNIA POWER AGENCY
 NORTHERN CALIFORNIA WATER ASSOCIATION
 PALO ALTO UTILITIES DEPARTMENT
 SACRAMENTO MUNICIPAL UTILITY DISTRICT
 SHARE THE WATER COALITION
 STATE WATER CONTRACTORS
 THE NATURE CONSERVANCY

PREPARED STATEMENT OF EMERY POUNDSTONE, RECLAMATION DISTRICT
NO. 108

Mr. Chairman, Members of the Subcommittee, my name is Emery Poundstone. I am a fourth generation farmer from Northern California and President of the Board of Trustees of Reclamation District No. 108.

The District was founded in 1870, and, in 1918, the District became the first reclamation district in the State of California to deliver irrigation water to farmers.

Today, the District owns and operates 10 pumping plants and approximately 200 miles of canals, including 40 miles of concrete lined canals, that deliver water to 48,000 acres of irrigated agricultural land.

The District has been a pioneer in flood control, drainage and irrigation activities within the Sacramento Valley since its founding, 125 years ago.

And, today, the District continues that trend as a pacesetter by working with the Bureau of Reclamation, and State and federal resource agencies, to develop cost-effective alternatives to traditional positive fish barrier screens in order to reduce the entrainment of the endangered winter-run chinook salmon in agricultural water diversions on the Sacramento River.

In 1992, the District voluntarily stepped forward to initiate testing of its diversion facilities to determine the levels of entrainment. In 1993 and 1994, the District stepped forward, again voluntarily, to test the effectiveness of acoustic (underwater sound) and electric fish guidance technologies at the District's Wilkins Slough Pumping Plant.

To date, the District has spent in excess of \$1,200,000 of its own funds in an effort to address the problem. With the assistance and support of the Bureau of Reclamation, the National Marine Fisheries Service, and other federal and State resource agencies, the District is proceeding with plans for testing an electrical fish guidance and flow distribution facility during 1995.

The District is optimistic this new system will prove sufficiently effective that the National Marine Fisheries Service will find it to be a suitable alternative to a traditional positive fish barrier screen. In addition, it is our expectation that the system will be significantly less costly to install and operate when compared to traditional screens.

It is estimated that a positive fish barrier screen at the Wilkins Slough diversion could cost as much as \$7 million to construct. Successful protection through alternative technologies would save the District and the government millions of dollars. Similar savings could be realized at hundreds of other diversions along the Sacramento and San Joaquin Rivers and in the San Francisco Bay-Delta.

In order to continue to make progress on this innovative, cost-effective fish protection technology, Reclamation District No. 108 respectfully requests a \$600,000 appropriation in fiscal year 1996 from the Bureau of Reclamation toward the total program cost for 1996 of \$1,200,000. This is the minimum level of funding that will be necessary to keep this project on a schedule that is satisfactory to the resource agencies.

Thank you for your consideration and continuing support.

**PREPARED STATEMENT OF KEITH ISRAEL, GENERAL MANAGER, MONTEREY
REGIONAL WATER POLLUTION CONTROL AGENCY**

Mr. Chairman, thank you for the opportunity today to appear before this subcommittee. The people of the Salinas Valley in California's 17th District appreciate your willingness to accept our statements in support of the Salinas Valley Reclamation Project. The Bureau of Reclamation (USBR) has requested \$1,100,000 as part of the President's FY 96 Budget for the P.L. 84-984 Small Reclamation Loan Program for continuation of loan obligations made to the Monterey Regional Water Pollution Control Agency (MRWPCA). This appropriation amount, when combined with other federal funding which is available from the U.S. Treasury pursuant to the Federal Credit Reform Act of 1990 will yield a total loan amount of \$1,980,000 for FY 96. The amount requested, when combined with the additional Treasury portion, is intended to fulfill the Bureau's second year loan commitment for assistance to construct the project. The funding request is the result of a lengthy and complex financial agreement worked out with the other Loan program participants and the Bureau. The agreement recognizes the tight federal budgetary constraints and represents that absolute minimal annual amount necessary to proceed with the project. The MRWPCA has been extremely accommodating of the Bureau's budgetary constraints and has agreed to expend considerable local funds to bridge the federal government's budgetary shortfall. Any additional cuts in federal funding will jeopardize the complex financing plan for the project. At the time this appropriation is approved, the Salinas Valley Reclamation Project (SVRP) will be in construction. Therefore, it is imperative that at least \$1,980,000 be designated for the Salinas Valley Reclamation Project in the President's FY 96 Budget.

Monterey Regional Water Pollution Control Agency, a joint-powers entity formed under the laws of the State of California, was created in the early 1970's to implement a plan that called for consolidation of the Monterey Peninsula and northern Salinas Valley wastewater flows through a regional treatment plant and an outfall to central Monterey Bay. The plan also required studies to determine the technical feasibility of using reclaimed water for irrigation of food crops (artichokes, celery, broccoli, lettuce, and cauliflower) in the Castroville area. These studies were initiated in 1976 and included a five year full scale demonstration of using reclaimed wastewater for food crop irrigation. California and Monterey County health departments concluded in 1988 that the water was safe for food crops that would be consumed without cooking. Subsequently, the Salinas Valley Seawater Intrusion Committee voted to include reclaimed water in their plan to slow seawater intrusion in the Castroville area.

The reclamation project will provide 19,500 acre feet of reclaimed water to lands south and west of Castroville where abandonment of wells threatens agricultural production and the loss of a portion of rural America. It will also reduce discharge of secondary treated wastewater to the

recently created Monterey Bay National Marine Sanctuary.

The State Water Resources Control Board specifically indicated its strong support for the Salinas Valley Reclamation Project in a 1994 letter to the USBR. The Salinas Valley Reclamation Project is an essential component in the plan to deal with basin-wide groundwater overdraft and seawater intrusion. The urgency of the State Board's letter makes it all the more important that the MRWPCA proceed expeditiously with the Salinas Valley Reclamation Project.

In August 1992, the original loan request was submitted to the Bureau. Subsequent approval was received from the Secretary of Interior in May 1994. Prior to loan approval, in March 1993, the EIR/EIS for the project was certified by the Bureau. Design for the project is complete, and construction is set to begin. Through extensive discussion and negotiations between MRWPCA and the USBR, a project financing plan was created. The loan repayment contract negotiations between the USBR and MRWPCA were held on February 13 and 14 and March 10 of this year. The USBR made it quite clear that the original provisions in the loan application of full disbursement during the three years of construction could not be met due to federal budget shortfalls. As defined in the new repayment contract, the USBR will disburse funds to the MRWPCA over an eight year period. This means that the MRWPCA will receive these funds for five years after the project is operational. This also means that the MRWPCA will have to acquire additional "bridge financing" to meet the needs of the Salinas Valley Reclamation Project construction costs.

Even though the additional private debt service will increase the project costs, the critical problem of seawater intrusion demands that the project proceed. The USBR loan is a crucial link in project funding and it is imperative that annual appropriations, even at the planned reduced rate over eight years, continue. The federal funds requested under the P.L. 84-984 program will be repaid by landowners in the Salinas Valley with assessments that are currently in place. Local funds totaling \$8,900,000 have already been spent getting to this point.

Mr. Chairman, we urge you and the members of the subcommittee to give your continued support to the Bureau's request of \$1,100,000 for the Salinas Valley Reclamation Project in the President's FY 96 Budget. This appropriation when combined with the Treasury portion pursuant to Federal Credit Reform Act of \$880,000 will product a total loan amount of \$1,980,000 for FY 96. Without your continued support, we will not be able to realize the benefit of the work completed over the past several years; and, the groundwater basin will continue to deteriorate creating a significant threat to the economy and to the health, welfare of our citizens.

Your support and continued assistance will be much appreciated.

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**PREPARED STATEMENT OF MICHAEL D. ARMSTRONG, GENERAL MANAGER,
MONTEREY COUNTY WATER RESOURCES AGENCY**

Mr. Chairman, thank you for the opportunity today to appear before this subcommittee. The people of the Salinas Valley in California's 17th District appreciate your willingness to accept our statements in support of the Castroville Seawater Intrusion Project. The Bureau of Reclamation (USBR) has requested \$1,500,000 as part of the President's FY 96 Budget for the P.L. 84-984 Small Reclamation Loan Program for continuation of loan obligations made to the Monterey County Water Resources Agency (MCWRA). This appropriation amount, when combined with other federal funding which is available from the U.S. Treasury pursuant to the Federal Credit Reform Act of 1990 will yield a total loan amount of \$2,710,000 for FY 96. The amount requested, when combined with the additional Treasury portion, is intended to fulfill the Bureau's second year loan commitment for assistance to construct the project. The funding request is the result of a lengthy and complex financial agreement worked out with the other Loan program participants and the Bureau. The agreement recognizes the tight federal budgetary constraints and represents that absolute minimal annual amount necessary to proceed with the project. The MCWRA has been extremely accommodating of the Bureau's budgetary constraints and has agreed to expend considerable local funds to bridge the federal government's budgetary shortfall. Any additional cuts in federal funding will jeopardize the complex financing plan for the project. At the time this appropriation is approved the Castroville Seawater Intrusion Project (CSIP) will be in construction. Therefore, it is imperative that at least \$2,710,000 be designated for the Castroville Seawater Intrusion Project in the President's FY 96 Budget.

The Monterey County Water Resources Agency is a local government entity formed under the Monterey County Water Resources Agency Act. It is an agency with limited jurisdiction involving matters related primarily to flood control and water resources conservation, management, and development. The Salinas Valley, which is near the California coast in Monterey County is a productive agricultural area that depends primarily on groundwater as a water supply. The combination of the valley's rich soils, mild climate and high quality groundwater makes this valley unique among California's most fertile agricultural land and has earned the valley the distinction as the "Nation's Salad Bowl." As agricultural activity and urban development have increased in the past forty years, groundwater levels have dropped allowing seawater from the Monterey Bay to intrude the groundwater aquifers. Seawater intrusion is extensive in the portion of the Salinas Valley near the town of Castroville. The Castroville Seawater Intrusion Project (CSIP) will provide 19,500 acre-feet of reclaimed water for irrigation use to over 12,000 acres and help solve the seawater intrusion problem by greatly reducing groundwater pumping in the project area.

The State Water Resources Control Board specifically indicated its strong support for the Castroville Seawater Intrusion Project in a 1994 letter to the USBR. The Castroville Seawater Intrusion Project is an essential component in the MCWRA's plan to deal with basin-wide groundwater overdraft and seawater intrusion. The urgency of the State Board's letter makes it all the more important that the MCWRA proceed expeditiously with the Castroville Seawater Intrusion Project.

In August 1992, the original loan request was submitted to the Bureau. Subsequent approval was received from the Secretary of Interior in May 1994. Prior to loan approval, in March 1993, the EIR/EIS for the project was certified by the Bureau. Design for the project is complete, and construction is set to begin. Through extensive discussion and negotiations between MCWRA and the USBR, a project financing plan was created. The loan repayment contract negotiations between the USBR and MCWRA were held on February 13 and 14 and March 10 of this year. The USBR made it quite clear that the original provisions in the loan application of full disbursement during the three years of construction could not be met due to federal budget shortfalls. As defined in the new repayment contract, the USBR will disburse funds to the MCWRA over an eight year period. This means that the MCWRA will receive these funds for five years after the project is operational. This also means that the MCWRA will have to acquire additional "bridge financing" to meet the needs of the Castroville Seawater Intrusion Project construction costs.

Even though the additional private debt service will increase the project costs, the critical problem of seawater intrusion demands that the project proceed. The USBR loan is a crucial link in project funding and it is imperative that annual appropriations, even at the planned reduced rate over eight years, continue. The federal funds requested under the P.L. 84-984 program will be repaid by landowners in the Salinas Valley with assessments that are currently in place. The Monterey County Water Resources Agency has spent approximately \$8,900,000 of its own funds getting to this point.

Mr. Chairman, we urge you and the members of the subcommittee to give your continued support to the Bureau's request of \$1,500,000 for the Castroville Seawater Intrusion Project in the President's FY 96 Budget. This appropriation when combined with the Treasury portion pursuant to Federal Credit Reform Act of \$1,210,000 will produce a total loan amount of \$2,710,00 for FY 96. Without your continued support, we will not be able to realize the benefit of the work completed over the past several years; and, the groundwater basin will continue to deteriorate creating a significant threat to the economy and to the health, welfare of our citizens.

Again, thank you for your support and continued assistance.

PREPARED STATEMENT OF MICHAEL QUAN, PE, DEPARTMENT OF PUBLIC WORKS, SAN FRANCISCO, CA

- The San Francisco Area Water Reclamation Project is requesting \$1.5 million in Bureau of Reclamation FY 1996 funds to continue the feasibility study of exporting excess Bay Area recycled water to other California regions for beneficial reuse. Authorization for the study (through Public Law 102-575 Title XVI of the Reclamation Projects Authorization Act of 1992) allows the USBR to fund up to 50 percent of the cost, with local participants financing the remaining 50 percent.
- The San Francisco Area Water Reclamation feasibility study -- to identify Central California regions that require a dependable source of water for such uses as agricultural irrigation and salinity control -- has expanded from the original option of agricultural reuse via the Delta Mendota Canal, to as many as five alternatives. These additional alternatives were raised through extensive public scoping meetings in several cities throughout the Bay Area and Central California. The service areas identified in the feasibility study so far are: 1) Delta-Mendota Canal (agricultural irrigation), 2) South of the

Bay Area (agricultural irrigation and salinity repulsion), 3) South San Joaquin (agricultural irrigation), 4) Sacramento/San Joaquin Delta (salinity repulsion), 5) Indirect Potable Reuse (urban potable and various environmental applications).

- While the scope of the feasibility study has broadened from one to five alternatives requiring more technical analyses than originally budgeted, the funding constraints and deadlines remain the same as for the original sole direction. Phase I of the feasibility study is scheduled for completion in October of this year (1995), so that a complete environmental review of the best alternatives can be completed by **October 1997**. This deadline complies with PL 102-575 requirements for a report back to Congress not later than four years after the Bureau of Reclamation's first appropriation in October of 1993.
- All the study partners remain committed to the San Francisco Area Water Reclamation Project, and the local agencies are contributing 50 percent of the project's cost. Participants in the study include the water agencies of San Francisco, Santa Clara, Alameda and Alameda Zone 7; the wastewater agencies of San Francisco, Central Contra Costa, San Jose, Palo Alto, Dublin/San Ramon, Delta/Diablo, Millbrae; East Bay Municipal Utilities District, East Bay Dischargers Authority and South Bay Dischargers Authority. Also participating are the San Luis Delta Mendota Water Authority, the Exchange Contractors, and the California Department of Water Resources.
- Implementation of this project could potentially free up to 400,000 acre-feet of potable water for other uses, such as drought protection for municipalities, agricultural applications, or in-stream flows for fish and wildlife. From a wastewater discharge perspective, zero or near-zero discharge into San Francisco Bay could be achieved, thereby enhancing aquatic and recreational uses of the Bay.

Distinguished members of the Senate Appropriations Committee, thank you for the opportunity to present this statement on behalf of the almost 20 governmental agencies involved in the San Francisco Area Water Reclamation Project. The San Francisco Area Water Reclamation Project is also known as the Central California Regional Water Recycling Project because the potential service areas have expanded to northern and central California, with impacts for water rights throughout the state. Because of the far-reaching implications and broad benefits of this regional water reclamation project, we feel compelled to ask for the full funding of \$1.5 million originally requested by the Bureau of Reclamation for this project in federal fiscal year 1996.

The purpose of the San Francisco Area Water Reclamation Project is to conduct a feasibility study identifying California regions that could use high-quality recycled water for such purposes as agricultural irrigation or salinity control. Only excess recycled water -- water that exceeds maximum local usage by Bay Area municipalities -- would be exported to outside regions for beneficial reuse. We estimate that up to 400,000 acre feet a year of recycled water is available, the equivalent of a river's flow. This excess, high-quality water is currently disposed into the Bay, rivers and delta -- a discharge option that will be more difficult in the face of tighter discharge limitations and higher treatment standards facing the entire state.

On the other side of the water picture are the rising and competing demands for freshwater from many areas: agricultural usage which has a long and strong role in California's history; urban demands which are expected to almost triple by the year 2020; environmental flows for fish and wildlife protection. The recently publicized water quality standards for the Bay-Delta call for freshwater diversions to the Delta of up to 1.1 million acre feet of water, most of this burden to be borne by cities and farms. We truly believe that there is a significant role the San Francisco Area Water Reclamation Project can play in meeting the State's burgeoning water needs now, and in the immediate future.

There are several reasons why the San Francisco Area Water Reclamation project needs the full funding of \$1.5 million from the Bureau of Reclamation:

- Due to an extensive public scoping process, the feasibility scope of study has broadened from its original direction of exporting recycled water to the Delta Mendota Canal for Central Valley agricultural needs, to four more alternatives. These include exporting to South of the Bay Area (south Santa Clara, San Benito, etc.) for agricultural Irrigation and salinity repulsion; South San Joaquin Valley (Westlands and beyond) for agricultural irrigation; Sacramento/San Joaquin Delta for salinity repulsion; and indirect potable reuse.
- While the scope of the feasibility study has broadened from one to five alternatives requiring more technical analyses than originally budgeted, the funding constraints and deadlines remain the same. Phase I of the feasibility study is scheduled for completion in October of 1995, so that a complete environmental review of the best alternatives can be completed by October 1997. This deadline complies with PL 102-575 requirements for a report back to Congress not later than four years after the Bureau of Reclamation's first appropriation in October 1993.
- All the study partners remain committed to the San Francisco Area Water Reclamation Project, and the local agencies are contributing 50 percent of the project's cost. Participants in the study include the water agencies of San Francisco, Santa Clara, Alameda and Alameda Zone 7; the wastewater agencies of San Francisco, Central Contra Costa, San Jose, Palo Alto, Dublin/San Ramon, Delta/Diablo, Millbrae; East Bay Municipal Utilities District, East Bay Dischargers Authority and South Bay Dischargers Authority. Also participating are the San Luis Delta Mendota Water Authority, the Exchange Contractors, and the California Department of Water Resources.

With an expanded scope of study, we are concerned that anything less than full funding will adversely affect our ability to conclude the necessary studies within the original timeline. Of greater importance, though, is the impact the reduced funding will have on the momentum needed to keep this critical, regional partnership intact through the end of the study.

Finally, the San Francisco Area Water Reclamation Project will examine if freshwater can be freed up through any of these alternatives, and what potential water exchanges could result to benefit urban, agricultural or environmental needs. It is clear to us as participants in the San Francisco Area Water Reclamation Project that this feasibility study is important now, in light of increasingly stringent discharge and treatment standards, as well as important for California's future in assessing water availability, rights and transfers. The local partners are doing all we can to meet the local financial and staffing demands of this project -- we ask for your support in securing the full \$1.5 million that was originally requested in the Bureau of Reclamation's 1996 federal budget.

PREPARED STATEMENT OF TRIxie JOHNSON, VICE-MAYOR, CITY OF SAN JOSE, CA

Summary

By reducing treatment plant discharges and providing an alternative "drought-proof" source of water, South Bay Water Recycling will preserve the natural and economic environment of San Jose (California) and the high-tech industrial area of Santa Clara County known as Silicon Valley. Water recycling is a key part of a sustainable regional economy, one which includes a reliable water supply and the capacity to process the water once it has been used. An appropriation of \$9 million in the 1996 fiscal year will allow the Bureau of Reclamation to maintain its authorized level of participation.

Chairman Myers, Members of the Committee:

My name is Trixie Johnson. I am a member of the City Council and Vice-Mayor of the City of San Jose, California, "Capital of Silicon Valley." I am here to ask you to appropriate to the Bureau of Reclamation in the next fiscal year \$9 million for our South Bay Water Recycling project. Funding for this

program is authorized in Public Law 102-575, Title XVI of the Reclamation Projects Authorization Act of 1992, Section 1607, "San Jose Area Water Reclamation and Reuse Program." I also ask that you consider this appropriation an investment in the environmental and economic health of our area, which will provide considerable dividends in the years to come.

South Bay Water Recycling is an innovative, nonpotable water reuse program designed to help protect both the natural and economic environment of San Jose, Santa Clara, and other Silicon Valley communities at the south end of San Francisco Bay. Phase 1 of the project will provide for the annual reuse of nearly 10,000 acre-feet of reclaimed water at a design and construction cost of \$130 million. It will include over 60 miles of transmission and distribution pipelines, pump stations and reservoirs, which during the summer months will supply up to 20 million gallons per day (mgd) of nonpotable water for irrigation and industry. Construction of a major portion of the Phase 1 facilities is due to start this summer, and is scheduled to begin operation in November, 1997. Subsequent phases will recycle even more water by extending the pipeline to other areas or providing further treatment for potable reuse.

South Bay Water Recycling will reduce the amount of wastewater treatment plant effluent discharged to the Bay, in response to federally mandated environmental regulation. In January, 1989 the EPA and the San Francisco Bay Regional Water Quality Control Board determined that highly treated fresh water discharged from the state-of-the-art San Jose/Santa Clara Water Pollution Control Plant had reduced the salinity of nearby salt marsh, threatening the habitat of two endangered species. To prevent further marsh conversion, the Board imposed a flow cap on the plant of 120 mgd, effectively reducing the capacity of the plant to receive and treat wastewater from the Silicon Valley area of Santa Clara County.

Since flows had already exceeded that amount in previous years, there was an immediate need to divert treated wastewater from the South Bay. After extensive study, including technical investigations and market assessments, it was determined that the reuse of reclaimed wastewater would not only fulfill the Regional Board's environmental requirements, it would also provide a new reliable supply of water to a region frequently subjected to drought. The project has wide support in the community, and a citizen's advisory group has been formed to provide continuous input from the public.

It is somewhat ironic to be discussing wastewater reclamation when only last week a large part of our county was literally under water. But wet years like this one, with its damaging flood, mask a chronic water shortage not revealed by average rainfall figures. Seven out of the past ten years were drought years, in which San Jose received less than its modest average of fourteen inches of rain per year. In four of those seven drought years we received less than ten inches of rain. In short, we are a dry region, and our economic survival depends on our ability to use and reuse our water wisely.

Many ingredients are needed to sustain a healthy Silicon Valley economy. Our colleges and universities turn out well-educated workers, and our high-tech manufacturing base supports product research and development. The local financial community backs start-up companies which stimulate the

expansion of existing enterprises. There are currently some 4,000 high tech companies in the San Jose Metropolitan Area, employing over 200,000 people. Some estimates project that number to nearly double in the next ten years as computer technology ventures into new markets.

But such glowing forecasts will only be realized if we in government do our part by providing the public infrastructure needed to maintain a healthy environment for residents and businesses alike. The bottom line is, our competitive global economy will not favor cities which squander either their financial or their natural capital. The successful communities of the next century will be those which make the most intelligent use of all their assets, reduce waste and turn pollution problems into opportunities for reuse.

For this reason, the City of San Jose is committed to the goal of becoming a "sustainable city" to ensure a high quality of life for present and future generations. We have initiated dozens of different programs in areas ranging from energy-efficient lighting to hazardous waste minimization. Our curbside solid waste recycling program has one of the highest rates of citizen participation among the nation's large cities. Last year we diverted 160,000 tons of recyclable materials which would otherwise have ended up as garbage in area landfills but were instead converted into usable products.

All of these efforts will come to naught, however, if we are unable to guarantee an adequate, reliable water supply, or if we lack the capacity to process the water once it has been used. It takes ten gallons of water to make one computer chip; the larger chip manufacturers in our area use nearly a million gallons of water per day. Fortunately for us, the water reclaimed by our regional treatment plant, while not quite the quality of drinking water, is perfectly suitable for many other purposes including landscape and agricultural irrigation, use in cooling towers, and a number of industrial applications. Use of recycled water will offset demand for potable water, and make more water available in times of drought. In this way, South Bay Water Recycling will allow industry to continue to thrive in Silicon Valley, generating jobs for area residents with all of the considerable benefits which come from a prosperous regional economy.

You will hear today about a number of important water recycling projects, not only in San Jose, but also in San Francisco, Los Angeles, San Diego and in other communities throughout the state. Recycled water is "smart" water because it has the lowest impact on the environment and makes the most of a limited and precious resource. Congress showed wisdom and foresight in authorizing support for water recycling. This committee in particular is to be commended for providing initial funding for these projects. Now that they are under construction, your support is more important than ever.

San Jose is grateful to have the Bureau of Reclamation as our partner in South Bay Water Recycling, and we appreciate the appropriation approved by this committee last year. By the end of the 1996 fiscal year, we will have expended nearly \$50 million of local funds on project design and construction. The \$9 million we are requesting for this year will enable the Bureau to reach their authorized level of participation, and will allow us to meet our federally mandated schedule.

Thank you for the opportunity to speak to you today.

**PREPARED STATEMENT OF JOHN B. BRUDIN, GENERAL MANAGER, EASTERN
MUNICIPAL WATER DISTRICT**

Mr. Chairman, my name is John B. Brudin, General Manager of Eastern Municipal Water District. I appreciate the opportunity to submit Eastern's request for continued funding of a construction project under the provisions of the Small Reclamation Projects Act of 1956 as amended, P.L. 84-984 Loan Program, with the United States Department of the Interior, Bureau of Reclamation.

RECLAIMED WATER SYSTEM PROJECT

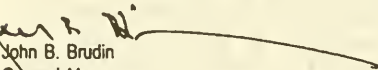
Eastern Municipal Water District is the local sponsor of the Bureau of Reclamation Project. Approval by the Secretary of the Interior for this project was obtained on May 23, 1991. This project provides for a new concept in water management which is resulting in significant water conservation. The Eastern Municipal Water District, like much of the arid west, is faced with a water shortage condition which is continuing to deplete the District's valuable groundwater supplies.

The project is putting into place the construction of a major transmission system and appurtenant works necessary for a Class 2 water supply system, which will 1) reduce the demands on the District groundwater supply; 2) provide for extended agricultural production; 3) provide environmental enhancement creating multipurpose wetlands for the migratory birds of the Pacific Flyway; and 4) create the potential of 990 jobs to bolster the regional economy.

In Fiscal Year 1992, 1993, 1994, and 1995, the continued support from your committee has provided over \$20,000,000 in appropriations which has allowed for the completion of nearly 80% of this vital system. It is the District's understanding that the President's Fiscal Year 1995-96 Budget includes funding for this project in the amount of \$6,000,000 as part of the Bureau of Reclamation Programs. During the California Water Commission hearings on March 3, 1995, the Commission supported a recommendation in this amount. We respectfully request your continued support of our project and this appropriation in the amount of \$6,000,000 in the 1995-96 Fiscal Year Budget. A summary is enclosed.

On behalf of the Board of Directors of Eastern Municipal Water District, we at the District, sincerely appreciate your continued assistance in scheduling the opportunity to appear before your Committee to testify on behalf of the District Project and as part of the California Water Commission presentation.

Respectfully,


John B. Brudin
General Manager

**SMALL RECLAMATION PROJECTS
LOAN PROGRAM**

NAME OF PROJECT

Reclaimed Water Facilities, Eastern Municipal Water District, San Jacinto, California

AUTHORIZATION

P.L. 84-984 - Small Reclamation Project Act

LOCATION, DESCRIPTION, AND REPRESENTATION

The project is located in Riverside County, California, north of the San Diego County line, east of the City of Riverside and west of the San Jacinto Mountains. Project features include construction of approximately 45 miles of major pipelines, two pumping stations, and a 3 million gallon per day tertiary treatment expansion to reclaim and convey wastewater effluent to wetland areas, recreational lakes, agricultural lands and M&I users. Representation for the State of California Congressional Districts include: CA-43 - Rep. Ken Calvert (R); CA-44 - Rep. Sonny Bono (R); CA-48 - Rep. Ron Packard (R); and Senators Dianne Feinstein (D); Barbara Boxer (D).

JUSTIFICATION

The project will provide reclaimed water for expansion of three separate wetlands, covering nearly 600 acres as well as provide reclaimed water to over 21,500 acres of irrigated land, thus preserving treated potable water that

would have been used without the proposed system. Recycling reclaimed water will also provide other important joint and conjunctive use benefits such as establishment of recreational parks and greenbelts, enhancement of wetlands, wildlife habitat, and the recharge of surplus reclaimed water into underground aquifers to improve water quality and for future drought (banking) management. This secondary water supply will, through exchange and replacement agreements, free-up limited primary water supplies in order to meet the fast-growing domestic and M&I demands in Southern California.

PROJECT PURPOSE

The water reclamation system will provide an alternate water supply system, for presently, water-short lands in the District. The enlargement of water reclamation facilities would decrease the use within the District of our limited imported domestic water supplies.

A major benefit of the project is to provide groundwater basin recharge/replenishment benefit by conveying untreated potable water to a 100 acre recharge basin within an area of the District known as the Little Valley near Bautista Canyon, east of Hemet, California. The recharge of this basin will enhance the declining groundwater supplies of the neighboring communities of Hemet and San Jacinto, California. Additionally, this recharge area will provide environmental enhancement, in the form of wetlands habitat, particularly for the benefit of waterfowl traveling the Pacific Flyway.

The system will also provide the enhancement and enlargement of two other wetland areas. One wetland expansion/creation, approximately 160 acres, is proposed in the general vicinity of the California Fish and Game, San Jacinto Wildlife Refuge. The other wetland expansion/creation is located along the Temescal Creek from Lake Elsinore to the Santa Ana River, encompassing approximately 300 acres. These wetlands areas will also have the potential to function as groundwater recharge areas, so that the water conveyed to these areas will percolate into and replenish the underlying groundwater basins.

PROJECT FINANCING

The District is seeking continued funding from its approved U.S. Bureau of Reclamation, Small Projects Act cost share loan of \$31,100,000.

FINANCIAL/ECONOMIC FACTORS:

Repayment: 15 years Loan Factor: 28.2% B/C Ratio: 2:1

FUNDING SCHEDULE:

BUDGET REQUESTS				CAPABILITY		
YEAR	FEDERAL	NON-FEDERAL	TOTAL	FEDERAL	NON-FEDERAL	TOTAL
*FY92	\$3,054,465	\$500,000	\$3,554,465	-0-	-0-	\$3,554,45
*FY93	\$5,358,380	\$2,000,000	\$7,358,380	-0-	-0-	\$7,358,380
*FY94	\$8,682,100	\$2,800,000	\$11,482,100	\$2,000,000	\$2,000,000	\$15,482,100
FY95	\$4,160,000	\$2,000,000	\$6,160,000	-0-	-0-	\$6,160,000
FY96	\$6,000,000	\$3,000,000	\$9,000,000	-0-	-0-	\$9,000,000
FY97	\$3,887,700	\$3,321,400	\$7,209,100	<\$2,052,155>	<\$1,321,400>	\$3,373,555

* Actual Expenditure

JOBS CREATED

Up to 990 jobs will be created by design, manufacture, and construction of this project.

TOTAL PROJECT COST \$ 46,046,400

PROJECT STATUS

All facilities are either in design or construction with project completion anticipated in June of 1997.

PREPARED STATEMENT OF NEIL M. CLINE, GENERAL MANAGER, SANTA ANA
WATERSHED PROJECT AUTHORITY

Mr. Chairman, Members of the Committee, thank you for the opportunity to participate today to present the Santa Ana Watershed Project Authority's request for federal assistance in the construction of the Chino Basin Desalination System. My name is Neil Cline. I am the General Manager of the Authority, a joint powers agency composed of the five major water districts that manage the water resources of the Santa Ana River area in Southern California. The Authority, through its member districts, serves over four million people in San Bernardino, Orange and Riverside Counties.

The Chino Basin Desalination Program is a major component of the water quality protection plan adopted by the State of California Regional Water Quality Control Board. The plan is designed to protect water resources in the Santa Ana Watershed area from further degradation, and to extend the utility of scarce local water supplies through environmentally sound processes. The Chino Groundwater Basin, an area of about 220 square miles, is located upstream of densely populated Orange County. Water quality in the region is degrading due to previous and ongoing agricultural activities. Irrigation drainage over the past 100 years has deposited high concentrations of salt and nitrates in the soil and groundwater. At the present time there are over 300,000 dairy cattle concentrated on 15,000 acres of land in the basin. It is estimated that the dairy operations, despite strong efforts to manage quality issues, contribute as much as 27,000 tons of salt annually to the groundwater supplies in the area. Municipal water wells in the communities of Norco, Jurupa and the City of Chino have been abandoned due to salt and nitrate contamination. Recent studies have concluded that if left unchecked the salt and nitrates will further degrade local groundwater, threatening over 50% of the basins supply, and that downstream water resources in Orange County are equally in jeopardy.

The Chino Basin Desalination System will be constructed and operated to protect groundwater resources in the area from further deterioration, to protect the Santa Ana River from degradation, and to facilitate expanded conjunctive use of imported and local water supply. The project will extract and desalt about 8,000 acre-feet per year of salt laden, brackish groundwater from the Chino Basin. Desalting will be accomplished by installing an 8 million gallon per day desalination plant that will produce a potable water for use in nearby cities and on local farms. The desalter will be supplied poor quality water from a series of extraction wells, specifically located to intercept the migration of contaminated water. As much as 20,000 tons of salts will be removed from the basin annually by this operation.

The estimated cost of the desalting plant and appurtenant features is \$47,600,000. Local agencies, including a loan from the State of California have contributed about \$15,600,000 to this program to date. The Authority is seeking the estimated balance of \$32,000,000 through the U.S. Bureau of Reclamation PL 84-984 Small Reclamation Projects Act Program. The loans from the State and Federal government will be repaid from proceeds derived by marketing the desalted water to local communities, who to meet their increasing demands, will otherwise be forced to depend upon imported supply from Northern California, conveyed by the State's Department of Water Resources from the Sacramento-San Joaquin Delta to the Metropolitan Water District of Southern California, a supply that has steadily diminished over the past several years. The project has the support of local water jurisdictions, the local and State Water Quality Control agencies, local agricultural interests and the Metropolitan Water District. To date, SAWPA's member districts have invested \$2,000,000 in preliminary investigations and facility planning for this project.

The schedule for the Chino Basin Desalination Program is for preliminary and final design to be completed by October 1995, with construction to begin in December 1995. The project will be accomplished using multiple construction contracts and is anticipated to be completed with water deliveries in January 1997.

The project benefits of this important program will be measured by:

1. Protection of ground and surface water supplies.
2. Protecting the environment from continued salinity degradation.
3. Assuring the long range viability of agriculture in the region.
4. Providing additional water in an area of water scarcity.
5. Providing as many as 1,000 design and construction jobs in an area where unemployment is among the highest in the United States.

Your support of this vital program will be greatly appreciated by local and regional water resource agencies and the people they serve.

Thank you.

**PREPARED STATEMENT OF ELSINORE VALLEY MUNICIPAL WATER DISTRICT,
LAKE ELSINORE, CA**

The Temescal Valley Project is a public works water project which is being sponsored by EVMWD to develop and manage local water resources and to improve the economy of western Riverside County of southern California.

The importance of this project as we plan for the next century cannot be overstated. It will ensure the ability of the District to meet the growing water requirements of an **expanding population** in southern California while preserving the existing water resources on which agriculture has relied for over a century. The project has been conceived in a manner which will keep impacts to the environment to an absolute minimum. Approximately **6,000 acres of citrus** are under production in this area. Much of the crop is exported to trading partners in the Pacific Rim, which has a positive effect on the balance of trade with these countries.

The Temescal Valley Project addresses **national priorities** in several areas. EVMWD and the Temescal Valley Project are in key positions for **regional management** of water and reclaimed water supplies. Plans by Eastern MWD, located upstream from EVMWD on the San Jacinto River, for construction of a **desalter** will require a pipeline for the disposal of brine. Construction of the Temescal Valley Project will be coordinated with other local agencies so that it can include installation of a **brine line** in the same pipe trench as the water supply line. The cost of the brine line will be reduced through this cooperation with the Santa Ana Watershed Project Authority, Eastern MWD, other local agencies and Elsinore Valley MWD. The Temescal Valley Project will allow Elsinore MWD to contribute additional reclaimed water to the flows in the Temescal Wash, a significant riparian **wetlands** which is the habitat of the Least Bell's Vireo, an **endangered species** of bird. The Temescal Valley Project is a key element in Elsinore Valley MWD's total water management planning for the challenges of the next century.

Additionally, the Temescal Valley Project will contribute at least **900,000 man-hours of employment** at a time when unemployment is estimated at 10.25 percent in the area served.

TEMESCAL VALLEY PROJECT

ELSINORE VALLEY MUNICIPAL WATER DISTRICT

ABOUT E.V.M.W.D.

Created in 1950, Elsinore Valley Municipal Water District is in its forty-third year of service.

The District covers approximately 93 square miles, stretching from California Oaks in the south, to Glen Ivy in the north.

E.V.M.W.D. also serves the cities of Lake Elsinore, Canyon Lake, Murrieta and the Wildomar area.

In 1989 the District began serving the Temescal Valley area, providing water for irrigation and domestic customers.

Today, the District has approximately 24,000 water, wastewater and agricultural services combined.

Location: Lake Elsinore, California

Congressional District: 43rd

Project Purposes:

The Temescal Valley Project will improve EVMWD's ability to service water supply needs in the Temescal Valley. The improvement program will include increased delivery capacity, the rehabilitation or replacement of inefficient wells, 23-million gallons of added storage capacity, and highly efficient operational controls. The rehabilitated system will accommodate additional water supplies from the Woodcrest Project, thus allowing improved management flexibility to meet local conservation and water quality objectives while experiencing increasing demands. Presently, approximately 17,000 acre-feet of water is required to irrigate 6,000 acres of orchards and service 750 residential connections.

Project Facilities:

Pipelines, water storage reservoirs, wells, operations facility.

Cost:

Federal: \$23,475,000
Local: \$10,659,000

Total Project Cost: \$34,134,000

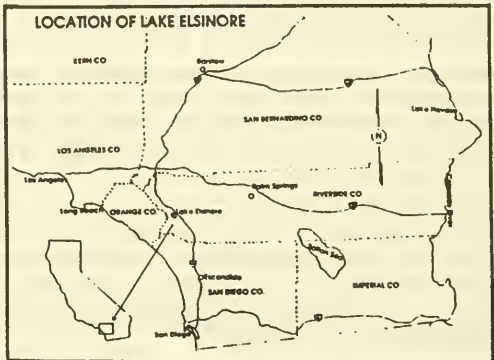
Federal Funding Authority:

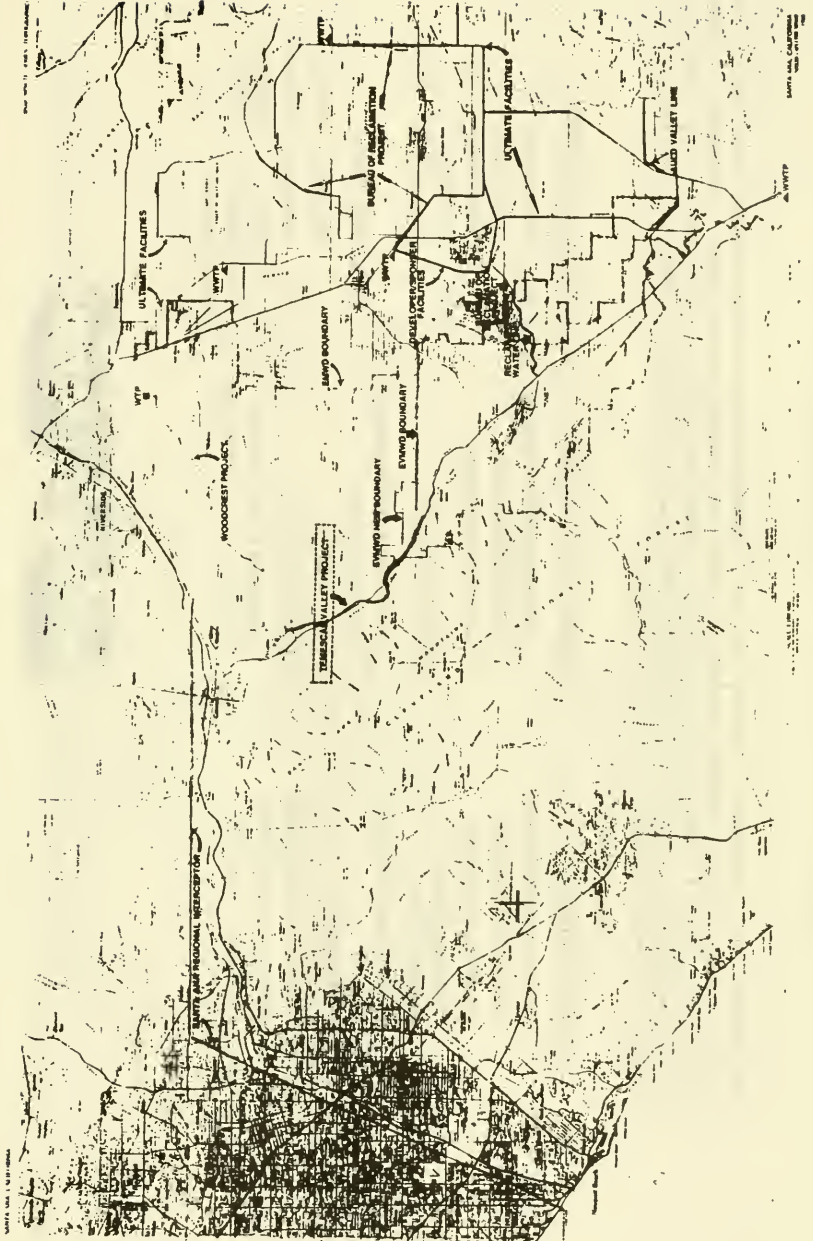
Small Reclamation Projects Act, U.S. Bureau of Reclamation



Elsinore Valley Municipal Water District

P.O. Box 3000
Lake Elsinore, CA 92531-3000





TEMESCAL VALLEY PROJECT

1118

BACKGROUND: *The Temescal Valley is located along Interstate 15 between Riverside and San Diego in Riverside County, California. The needs for the project arise from the deteriorated condition of the 50-year old water supply system and population growth spurred by the recent completion of Interstate 15. The purposes of the project are to rehabilitate the supply system and increase its capacity to meet future demands. The project sponsor, Elsinore Valley Municipal Water District, has initiated final designs to expedite construction and provide some relief from water shortages created by 6 years of continuous drought.*

PROJECT FEATURES:

Transmission Main (10 mi)
Distribution Mains (4 mi)
Storage Tanks (23 mgal)
Groundwater Wells (3)
Operations Facility
Environmental Monitoring

FEDERAL PARTICIPATION:

U.S. Department of the Interior
Bureau of Reclamation
Lower Colorado Region

PROJECT BENEFITS:

Water Supply
Water Quality
Conservation
Job Creation
Education

AUTHORIZATION:

Small Reclamation Projects Act
Public Law 84-984

BENEFIT AREA:

Population - 30,000 people
Agriculture - 6,000 acres
M&I - 4,000 acres
Natural - 2,000 acres

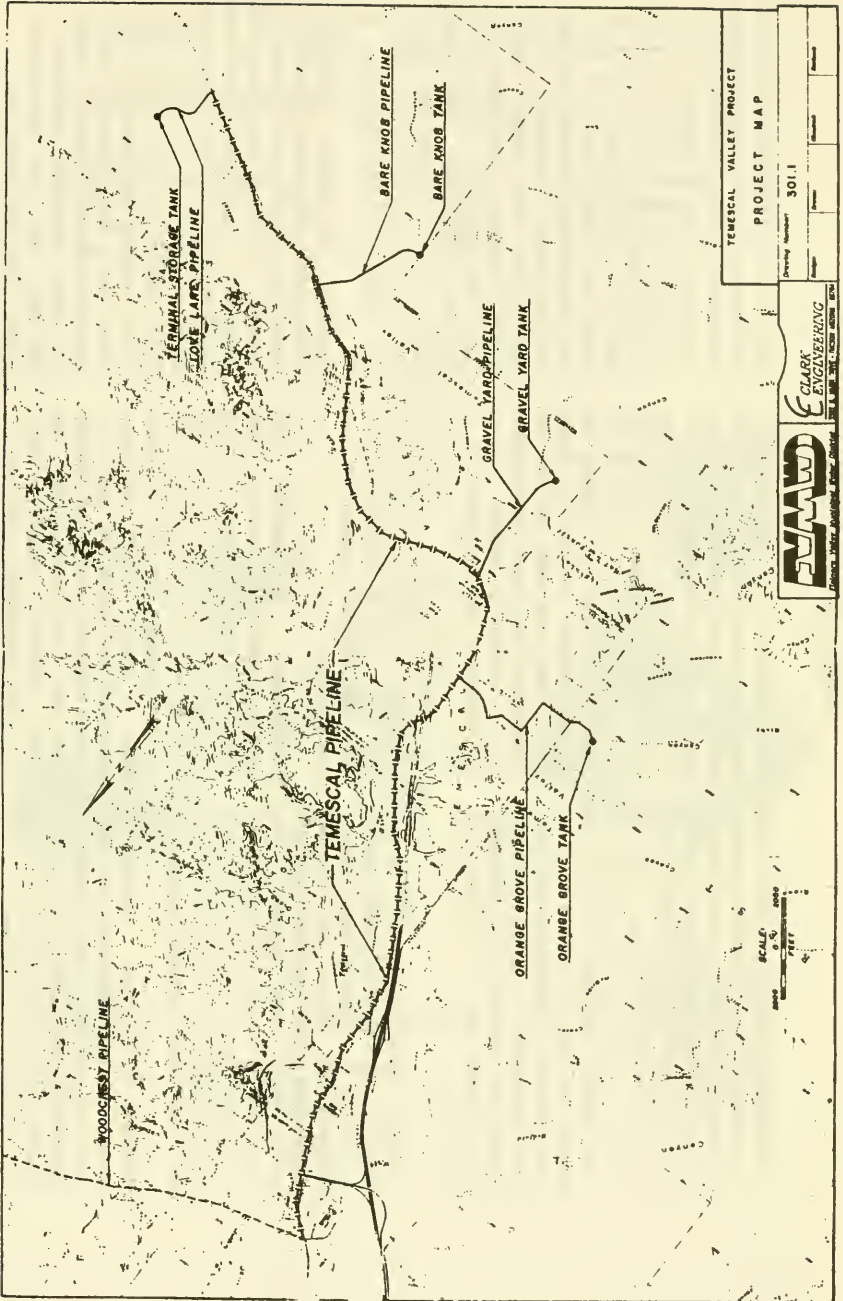
PROJECT COSTS:

Total Project - \$34,134,000
Federal Loan - \$23,475,000
Local Share - \$10,659,000

LOAN REPAYMENT:

Repayment Period - 34 Years
Interest Payment - \$25,072,000





PROJECT BENEFITS

Water Supply: The Tennessee Valley Project will increase water supply capabilities through a connection with the State Water Project. The additional supply capacity of 41 cfs will be used to conserve local groundwater supplies and meet increasing demands.

Water Quality: State Project Water imported through the Woodcrest Project is of higher quality than other import supplies and some local groundwater. Irrigated agriculture, municipal and industrial, and fish and wildlife will all benefit from the improved water quality.

Irrigated Agriculture: Agriculture will benefit from the increase in regional supplies as well as the improved water quality. Increasing M&I demands will force the abandonment of over 5,000 acres of orchards without project water supplies. Salt accumulation in the soils resulting from the use of poorer-quality water for irrigation will be leached more effectively using the higher-quality water without increasing irrigation.

Municipal and Industrial: Although the project's primary function is to serve agriculture, future M&I service is inevitable. The proposed project facilities are designed to accommodate a population growth of about 27,000 people over the next 45 years.

Fish and Wildlife: The Tennessee Wash is a natural drain used by EVMWD for effluent discharge. Riparian habitat along the 20-mile wash is home to a diverse population of plants and animals including state and federally listed endangered species. Competition for existing water supplies will result in the diversion of wastewater for irrigation and industrial purposes without the project. Effluent stream flows which have enhanced the habitat over the past 15 years would no longer be available to maintain biota or recharge the lower groundwater basin.

The agricultural land use supports over 135,000 trees and provides cover, shelter and water for a variety of wildlife that thrive between the Cleveland National Forest and Tennessee Wash.

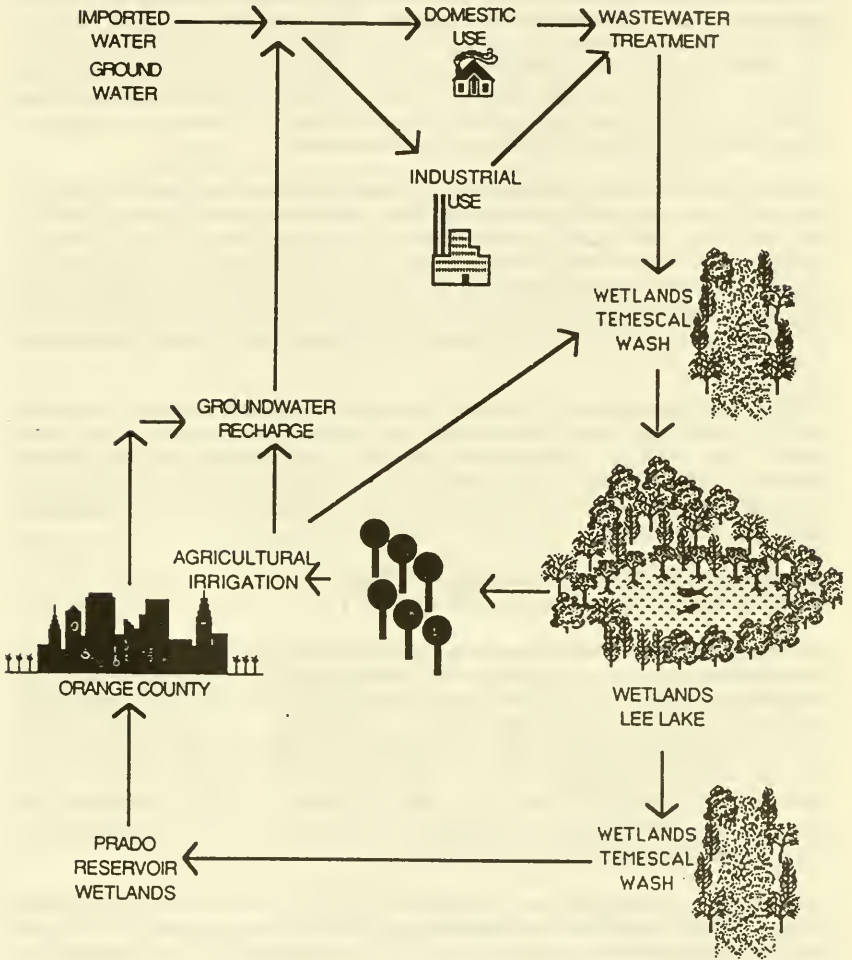
Conservation: The additional supply capability will allow the use of State Project Water to offset local production in early years of operation to effect increases in local storage. The stored water will then be available to meet emergency demands in the event of a pipeline failure or drought. These conservation opportunities will extend not only to the Tennessee Valley but throughout the EVMWD service area. The proposed project also features conservation elements to reduce conveyance losses and energy requirements.

Job Creation: Approximately 430,000 man-hours will be required to complete project construction -- the equivalent of 225 man-years of employment. An additional 250 man-years will be required in support services and manufacturing, all of which create short-term employment. Long-term employment in the housing construction industry will directly benefit approximately 200 workers on a full-time basis to meet the demand of 150 new homes per year. Other employment such as business construction, manufacturing, and retail and professional services will significantly add to the area's growing economy while maintaining the existing agricultural industry representing a labor force of over 300 people on a full-time basis.

Education: The Tennessee Valley Project affords a diversity of educational opportunities ranging from agriculture and environmental awareness to resource conservation and management. Local farms and riparian areas provide a valuable resource for elementary educational programs in nature study. Modern equipment to collect weather data, monitor water use, and process information will be used to predict demands, calculate consumptive use and groundwater recharge, and identify management opportunities for conservation. The project will complement EVMWD's existing education program.

TEMESCAL VALLEY PROJECT

TOTAL WATER MANAGEMENT CYCLE



**PREPARED STATEMENT OF RICHARD W. ATWATER, GENERAL MANAGER,
WEST BASIN MUNICIPAL WATER DISTRICT**

Mr. Chairman and members of the Subcommittee, thank you for providing me an opportunity to testify today on the U.S. Bureau of Reclamation appropriations for fiscal year 1996.

The West Basin Municipal Water District (WBMWD) supports the \$9.3 million in the Bureau's appropriation under the authorization of Title XVI of P.L. 102-575. Section 1613 of Title XVI, Los Angeles Area Water Reclamation and Reuse Project, provides that the Secretary is authorized to participate with WBMWD and the City of Los Angeles in the design and construction of water recycling facilities to produce 120,000 acre-feet of recycled water annually. The federal share shall not exceed 25 percent of the total construction costs (and no federal funds are to be provided for operation and maintenance).

Section 1614 of Title XVI, San Gabriel Basin Demonstration Project, similarly authorizes the Secretary to participate with the Metropolitan Water District of Southern California (MWD), Main San Gabriel Water Quality Authority, Central Basin Municipal Water District (CBMWD), and the Upper San Gabriel Valley Municipal Water District in a comprehensive conjunctive use program. CBMWD is constructing the Rio Hondo In-lieu Recycling Project component of the San Gabriel Demonstration Project. The FY 1996 budget submitted by the President includes \$9.7 million for Section 1614. *CBMWD supports this amount in the Bureau of Reclamation's budget.*

The West Basin Municipal Water District and Central Basin Municipal Water District today have under construction the largest water recycling and wastewater reuse program in the United States. Total design and construction expenditures to date have exceeded \$200 million (1991-1994), and during the next three years, the Districts expect construction expenditures to be an additional \$100 million. The program will create approximately 2,500 construction jobs and over 5,000 indirect jobs.

**WEST BASIN MUNICIPAL WATER DISTRICT and
CENTRAL BASIN MUNICIPAL WATER DISTRICT**

The West Basin Municipal Water District and Central Basin Municipal Water District are located in the coastal plain of Los Angeles County. Both Districts are member agencies of the Metropolitan Water District of Southern California and receive two-thirds of their annual supply from MWD's imported water delivery system. The Districts' other sources of supply are our local groundwater and recycled water. Both Districts were established by popular elections under the California Special Districts Act for Municipal Water Districts (WBMWD was organized in 1947 and CBMWD in 1952). Forty-one cities are within the boundaries of the Districts, with an overall population of approximately 2.4 million. The Districts wholesale water to approximately 50 separate retail water utilities.

The two Districts are governed by separately elected five-member Boards of Directors, but share the same modest administrative and engineering staff (34 full-time employees). Most of the Districts' water management programs and water recycling projects are jointly administered to save costs.

LOS ANGELES AREA WATER RECLAMATION AND REUSE PROJECT

WBMWD and CBMWD currently have under design and construction the largest water recycling program in the United States. These water recycling projects, in combination with the Districts' water conservation, groundwater management and desalination projects will reduce their need for imported water from Northern California by over 100,000 acre-feet annually. These projects have multiple benefits to Southern California:

- Provide a more dependable water supply and reduce the likelihood of water rationing;
- Lower the cost of water to industry (e.g., refineries, aerospace firms, textile manufacturing) and thereby provide incentives to not relocate;
- Environmental protection - reduce by 25 percent the wastewater discharged into Santa Monica Bay (an EPA designated National Estuary);
- Create new jobs, both construction related and permanent, to operate and implement the Districts projects and programs; and
- By reducing the use of imported water from Northern California (including the Mono Basin and the Sacramento Delta watersheds), the Districts will assist in the "statewide water solution" and significantly help in protecting the fish and wildlife resources in northern California.

The Districts' water recycling projects have received widespread public support from environmental, community, and business groups. The water recycling projects are also an excellent example of local governmental cooperation. The City of Los Angeles, which owns and operates the Hyperion wastewater treatment plant (the largest plant on the West Coast), has contracted with West Basin for the supply of the wastewater in return for 25,000 acre-feet of the treated recycled water for use within the city boundaries. In addition, the CBMWD has contracts with the Los Angeles County Sanitation Districts for treated recycled water from two of its water reclamation plants to distribute over 20,000 acre-feet annually through 70 miles of pipeline distribution systems. MWD has agreed to be a financial partner in these projects by contributing \$154/acre-foot for each acre-foot of recycled water produced and reused (a financial commitment of over \$200 million). To ensure the financial feasibility of these recycling projects, the Districts have imposed annual property owner water standby charges which provide approximately \$13 million each year for the payment of the water revenue bond debt service until the recycled water sales are sufficient to pay for annual operation and maintenance and bond debt service.

The Administration has committed to \$50 million of the total \$200 million construction costs of the West Basin Water Recycling Program. In FY 1994, the Bureau of Reclamation provided a \$5 million grant and in FY 1995 a \$6.9 million grant. The planned contribution is as follows:

	WBMWD	BOR GRANTS
FY 94	\$ 75 million	\$ 5 million
FY 95	\$ 90 million	\$ 6.9 million
FY 96	\$ 15 million	\$ 8.1 million
FY 97	\$ 10 million	\$ 15 million
FY 98	\$ 10 million	\$ 15 million
Total	\$ 150 million	\$ 50 million
Grand Total	\$ 200 million	

Phase I of the West Basin Water Recycling Project began delivering water to customers in February 1995 (approximately 20,000 AF). Phase II is under design, and construction will be initiated in the fall of 1995. Phase II construction will be completed in late 1997 and will increase the use to 30,000 AFY by distributing recycled water to all the major refineries in Los Angeles County. Additional expansions of the water reclamation plant would be constructed in phases allowing for the ultimate capacity of approximately 100,000 AF (Year 2000).

RIO HONDO IN-LIEU RECYCLING PROJECT

The Central Basin Municipal Water District's Water Recycling Program is comprised of both the Century and Rio Hondo Recycled Water Projects.

The Century Recycled Water Project was completed in 1993 and consists of approximately 35 miles of recycled water distribution pipeline, serving the cities of Downey, Bellflower, Paramount, Lakewood, Norwalk, Compton, South Gate, and Santa Fe Springs. Currently, recycled water from the Los Angeles County Sanitation District's 37.5 mgd (42,000 AFY) Los Coyotes Water Reclamation Plant is being delivered to over 60 sites, with a combined annual demand of 3,400 AFY. Ultimately, recycled water will be delivered to over 100 customer sites, with an annual demand of approximately 6,800 AFY. The total construction cost of this project was \$23.5 million.

The Rio Hondo In-lieu Recycling Project is under construction. To date (March 1995), approximately \$25 million has been expended on pipelines and a pumping station located in Pico Rivera. When construction is completed in 1997, the Rio Hondo In-lieu Recycling Project will consist of over 46 miles of distribution pipelines, three storage tanks, two pump stations, and will interconnect with the Century and West Basin water recycling distribution systems. Recycled water from the Sanitation District's 100 mgd San Jose Creek Water Reclamation Plant, located north of Whittier, will be delivered to the cities of Whittier, Pico Rivera, Santa Fe Springs, Commerce, Montebello, Vernon, Huntington Park, Bell, Bell Gardens, and Cudahy. Approximately 13,000 AFY of recycled water will be delivered to over 170 industrial and landscape users. The total construction costs for the Rio Hondo Project distribution pipelines, storage tanks, and pump stations is estimated at \$64 million.

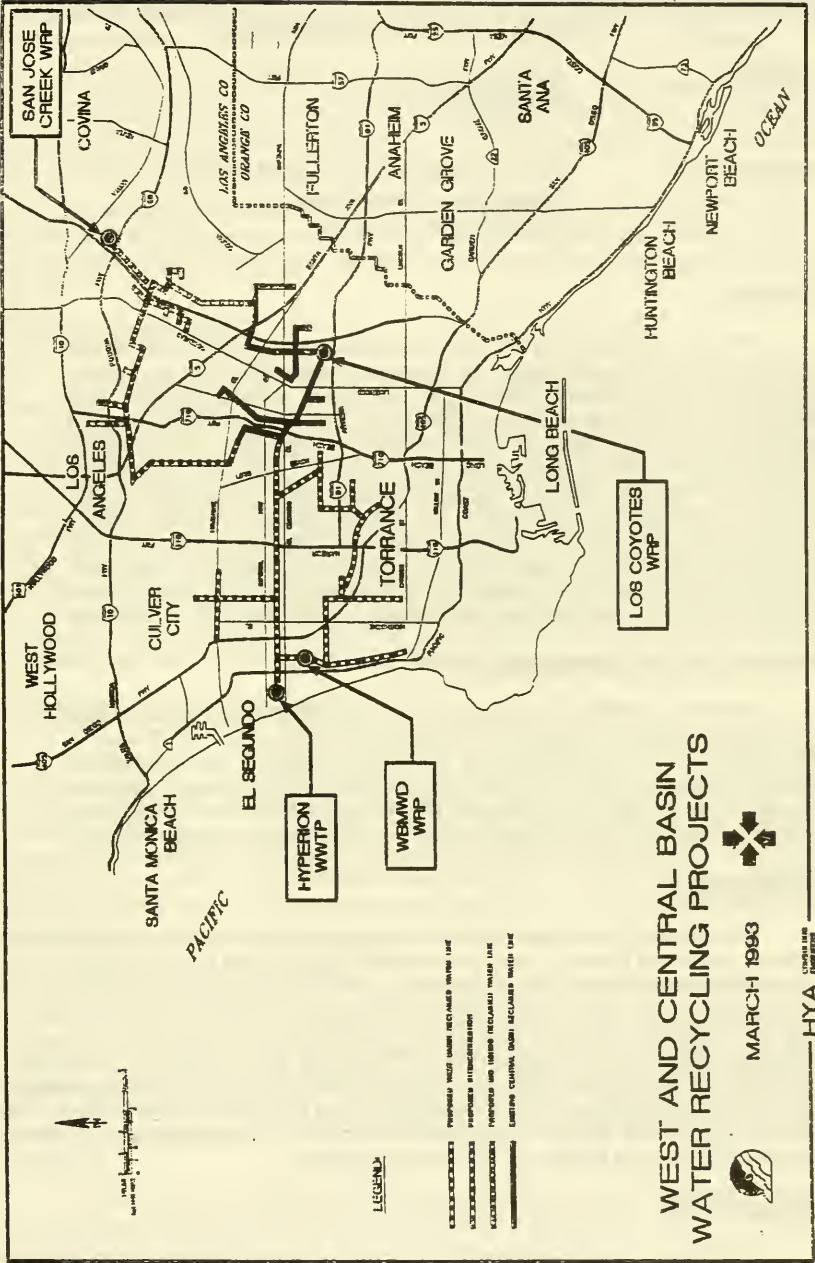
In FY 1994 and FY 1995, the Bureau of Reclamation contributed \$5.2 million in Federal grants to date for the construction costs, and the District has expended to date approximately \$25 million. The planned funding contributions are listed below:

Rio Hondo Water Recycling Project

	CBMWD	BOR GRANTS
FY 94	\$ 20 million	\$ 2 million
FY 95	\$ 10 million	\$ 3.2 million
FY 96	\$ 10 million	\$ 5.8 million
FY 97	\$ 8.0 million	\$ 5.0 million
Total	\$ 48.0 million	\$ 16 million
Grand Total	\$ 64 million	

SUMMARY/CLOSING REMARKS

West Basin Municipal Water District and Central Basin Municipal Water District have initiated construction of the largest water recycling program in the United States. These "state-of-the-art" recycling projects will ultimately recycle over 100,000 acre-feet annually, enough drinking water for 400,000 people. These water projects, more than any other in California, will provide more benefits to more people and the environment: conserve precious imported water from Northern California and Mono Lake, reduce wastewater pollution to Santa Monica Bay, and create jobs in south-central Los Angeles. In California, it is unique that a water project has received such a broad array of public support, including the Los Angeles County Taxpayers Association, Congress of Senior Citizens, Mono Lake Committee, Sierra Club, Heal the Bay, and many other environmental interest groups, and business and chamber groups, and elected officials from throughout the state. But the most important factor is the creation of local jobs in south-central Los Angeles communities and providing industry with a new, dependable and economical water supply. Mr. Chairman, thank you again for the opportunity to testify today.



WEST AND CENTRAL BASIN WATER RECYCLING PROJECTS



MARCH 1993



HYA

LOCAL USE
CONSERVATION

PREPARED STATEMENT OF WILLIAM R. MILLS, JR., GENERAL MANAGER,
ORANGE COUNTY WATER DISTRICT

PROJECT: Orange County Regional Water
Reclamation Project

SUBMITTED BY: William R. Mills Jr., P.E., General Manager
Orange County Water District
Fountain Valley, California

SUMMARY

The Orange County Regional Water Reclamation Project will produce a new, cost-effective, local water supply by developing wastewater that is currently discharged into the ocean. Phase I of the project is being planned as a demonstration project that will produce about 50,000 acre-feet per year of reclaimed water by the year 2000, primarily for groundwater replenishment. The project will ultimately develop 100,000 acre-feet per year of reclaimed water by the year 2020. Phase I will incorporate various emerging advanced water treatment technologies such as microfiltration, ultrafiltration and different types of reverse osmosis membranes. By incorporating these new technologies, this project has the potential to change the course of the water industry throughout the country. This landmark water project is being jointly developed by the Orange County Water District (OCWD) and County Sanitation Districts of Orange County (CSDOC) in California.

REQUEST AND RECOMMENDED ACTION

That the Committee on Appropriations, Subcommittee on Energy and Water Development approve \$600,000 in grant funding from the U.S. Bureau of Reclamation's FY 96 budget to assist in the development of the environmental study, health effects study, public outreach program, and preliminary design for Phase I of the Orange County Regional Water Reclamation Project. OCWD and CSDOC will provide matching local funds of up to \$1.8 billion for these activities.

BACKGROUND

The Orange County Water District is responsible for managing the resources and water quality of the Orange County groundwater basin. OCWD owns and operates the groundwater replenishment basins located on 1,600 acres along the Santa Ana River in the City of Anaheim. OCWD also operates two water recycling plants: Water Factory 21 and the Green Acres Project that provide supplies for seawater barrier protection, landscape irrigation and industrial uses. OCWD's service area currently consumes about 460,000 acre-feet (afy) per year of water; of which about 310,000 afy is groundwater, 130,000 afy is imported water, and the remainder is local run-off and reclaimed water. The proposed project will significantly augment the local groundwater supplies and reduce demands for imported supplies in OCWD's service area.

INTRODUCTION

OCWD and County Sanitation Districts of Orange County propose to jointly develop the Orange County Regional Water Reclamation Project. The project will produce a new, cost-effective, reliable, local water supply by developing CSDOC's wastewater that is currently discharged into the ocean. OCWD will primarily use the reclaimed water to maximize the storage capabilities of the groundwater basin and reduce Orange County's dependence on imported supplies. As a result, this project will decrease the region's

dependence on Colorado River and State project water supplies. Locally, the project's water will enhance the environment for the more than 100 wildlife species and the recreational areas in and around OCWD's recharge facilities, located in Anaheim.

It is anticipated that the proposed project will produce water of better quality than the Santa Ana River water currently used for groundwater recharge. OCWD staff have met and will continue to meet with the Department of Health Services and Regional Board staff to address regulatory issues associated with this project.

To ensure proper development of the project and to maximize the project's benefits, OCWD and CSDOC also intend to work closely with community groups as the project progresses. OCWD and CSDOC staff recently completed the project's feasibility study report.

PROJECT DESCRIPTION

Secondary effluent from CSDOC's Plant No. 1 will be the source water supply for the project. To remove nitrogen, salts and organics, Phase I of the project proposes to incorporate the latest in membrane treatment technologies with the use of microfiltration or ultrafiltration and reverse osmosis. This project represents the first large-scale water recycling effort to incorporate these emerging technologies and attempt to compile the much needed reliability and efficiency data on these treatment processes. The project's product water will then be pumped about 13 miles through a five to six foot pipeline located within the Santa Ana River right-of-way to OCWD's existing recharge basins in Anaheim. Phase I of the project is being developed to produce about 50,000 afy of reclaimed water by the year 2000. Phases II and III will develop an additional 25,000 afy of reclaimed water by the years 2010 and 2020. Thus, this landmark water reclamation project will ultimately produce 100,000 afy of reclaimed water.

SUMMARY OF BENEFICIAL USES

The project's water will primarily be utilized for replenishment of the Orange County groundwater basin. The new water will reduce the County's reliance on increasingly costly, imported water supplies from the Colorado River and State Water Project. By providing a reliable, local water supply, OCWD will enhance the areas in and around its existing replenishment basins, and create both environmental and recreational benefits. Additionally, by transporting the reclaimed water along the Santa Ana River, OCWD will offer interested irrigation and industrial users along the river the opportunity to utilize the project's water.

WATER SUPPLY BENEFITS

The proposed project will produce a new, cost-effective, local water supply that will increase the supplies in the Orange County groundwater basin. Thus, the region's reliance on imported water supplies from both the Colorado River and Northern California will be decreased. With this new, drought-proof, local water supply, the area served by the Orange County groundwater basin will reduce its vulnerability to local and state-wide droughts.

Because Phase I of the project is being developed to include testing of emerging technologies, this project has potential to change the course of the water industry throughout the country.

ENVIRONMENTAL BENEFITS

The project will provide additional water for the recharge facilities adjacent to the Santa Ana River; thereby enhancing the environment for the more than 100 local wildlife species, including the White Pelican and the Blue Heron. The project will also increase the recreational value of the surrounding area by providing more water for sport fishing and improving the aesthetics along the horse, bicycle and jogging trails.

The project will maximize the development of local water supplies primarily utilizing existing government-owned right-of-way; thereby minimizing disruption in the community during construction and operation.

COMMUNITY BENEFITS

A significant number of construction and maintenance jobs will be created through development and operation of the project. As part of this project, a Water Reclamation Enterprise Zone is being proposed to encourage water-reliant businesses to establish themselves along the Santa Ana River.

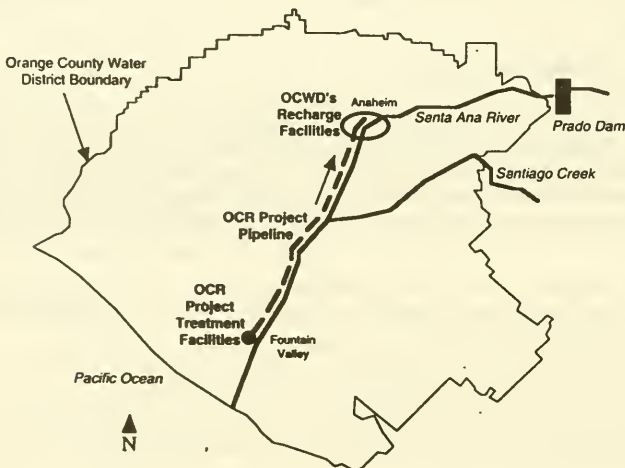
Additional recreational activities may be created at the recharge basins and the surrounding areas as a result of having the project's water available year around.

PROJECT SCHEDULE AND COSTS

- Phase I: 50,000 acre-feet per year of reclaimed water by the year 2000.
Estimated Cost: \$167.3 to \$176.2 Million.
- Phase II: Additional 25,000 acre-feet per year of reclaimed water by the year 2010.
Estimated Cost: \$49.0 to \$56.7 Million.
- Phase III: Additional 25,000 acre-feet per year of reclaimed water by the year 2020.
Estimated Cost: \$47.4 to \$52.7 Million.

This project is expected to produce water at a cost that is competitive compared to the future cost of imported water.

Orange County Regional Water Reclamation Project
Facility Map



PREPARED STATEMENT OF JERRY C. HARMON, COUNCIL MEMBER, CITY OF
ESCONDIDO, CA

Good morning Mr. Chairman and members of the subcommittee, I am Jerry Harmon, City Council Member of Escondido, California. I have previously appeared before this subcommittee as the mayor of Escondido, testifying on behalf of the San Diego Area Water Reclamation Program and in support of funding for its construction. I appreciate the opportunity to address you again today and would like to thank this subcommittee and in particular you, Mr. Chairman, and former Chairman Bevill and Mr. Fazio for the support you gave our project in each of the last two appropriations bills. The commitment you have shown to our project continues to benefit the people of San Diego County and its surrounding environment.

The San Diego Area Water Reclamation Program, in particular the Escondido Water Reclamation Program which I know the most about, is a proactive attempt by regional and city leaders to address the region's historic scarcity of available and affordable potable and non-potable water for residential and commercial uses. San Diego County, especially the North County where Escondido is located, has experienced a tremendous population influx over the last 20 years. While our infrastructure has kept pace, occasional long term investments, like the water reclamation program, are needed to keep up with growth demands for water -- a limited resource in our desert region. Since 1960, the population of Escondido has increased dramatically, as has the number of new businesses, not to mention our continued presence as an agriculture center. Through local planning and leadership, Escondido continues to attempt to meet the challenge of maintaining a high quality of life for its people, and with this subcommittee's continued support, can make it a reality.

While we are pleased with the increased amount of water that will be made available to the county as a result of this program, we must not overlook what this program will mean to the environment of the county and state. Currently, the city's waste water -- treated to secondary standards -- is piped overland to the Pacific Ocean and discharged at a depth of 150 feet in 8,000 feet offshore. While there is no threat to the

ocean or those or rely on the ocean for food or recreation, it seems to be a huge waste of this precious resource for communities in the desert of southern California.

State-of-the-art design improvements to Escondido's existing treatment plant, the Hale Avenue Resource Recovery Facility, would expand the facility's reclaimed water capacity to 18 million gallons per day. This project will significantly increase the amount of reclaimed water available for uses not requiring potable water, including agricultural applications, irrigation of golf courses, parks, athletic fields, roadway landscaping, school landscaping, and general decorative landscaping.

The Escondido Water Reclamation Program has received federal funding for its water reclamation program two consecutive years for a total federal contribution of \$760,000. In FY 1994, the Escondido Water Reclamation Program received \$400,000. Last year, as part of the San Diego Area Water Reclamation Program, Escondido received \$360,000 out of a total appropriation of \$2.5 million.

The Bureau of Reclamation's FY 1996 budget request includes \$1 million for the Escondido Water Reclamation Program, as part of a larger \$2.34 million appropriation for the San Diego Area Water Reclamation Program.

Escondido has budgeted for 75 percent of the program's total cost of \$69.931 million. A total federal contribution of 25 percent, or \$17.483 million, is needed to fully realize the Escondido Water Reclamation Program.

As a city leader, I understand the need to establish strict budget priorities and to stick to them. Public servants at all levels of government today are facing very difficult spending decisions. But the truth is that the San Diego Area Water Reclamation Program has been favorably reviewed by this subcommittee and the Senate subcommittee, the California Water Commission, and regional officials back home in San Diego County. In fact, the California Water Commission, which reviews the entire state's water needs, included a \$9 million FY 1996 recommendation for the San

Diego Area Program. This is well above the Administration's budget request of \$2.34 million for the program, but recognizes the reality of our need. In Escondido, we are proud that those closest to California's water management perceive the merit and worthiness of our project in comparison with the state's total water needs.

Mr. Chairman and members of the subcommittee, I respectfully ask for your continued support for this ever increasing important regional waste water reclamation program. We accept our responsibility to manage wisely our most precious natural resource through reclamation efforts.

PREPARED STATEMENT OF ROBERT GOLDSWORTHY, DIRECTOR, WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA

Introduction

Mr. Chairman and members of the Subcommittee, thank you for the opportunity to testify today on the U.S. Bureau of Reclamation Appropriations for fiscal year 1996. I am Robert Goldsworthy, a Board member of the Water Replenishment District of Southern California (WRD). Accompanying me is Fred Cardenas, the General Manager. I will briefly tell you about our District and its mission, elaborate a little about the project scope and indicate how your support of funding will help ensure a reliable supply of water at reasonable cost for the people in the southeast area of Los Angeles County.

District Background

The Water Replenishment District of Southern California (WRD), governed by an elected five-member Board of Directors, was formed in 1959 to manage the Central and West Coast Groundwater Basins located in southern Los Angeles County. The District's service area encompasses 420 square miles with 3.5 million people in 43 cities. WRD's primary objectives are to replenish the groundwater basins, halt sea water intrusion, and provide quality groundwater for area residents. Groundwater is an important source of water in southern Los Angeles County, comprising approximately 40% of total water needs in our District and, in some of our cities, 100%. Groundwater reserves also provide an emergency supply of water if imported supplies are lost during earthquakes or if drought or other natural disasters reduce the supply of imported water. It is essential that this valuable resource be protected.

Replenishing Groundwater Basins with Recycled Water

The Water Replenishment District now purchases 75,000 acre-feet per year of expensive imported water from the Colorado River and Northern California to artificially replenish the groundwater basins. Natural replenishment from percolation of storm water simply isn't enough. Further, years of overpumping before the District was formed emptied the basins and that lost inventory must be replaced. The low water levels also allowed sea water to enter the edges of the basins, contaminating and forcing the shutdown of numerous wells. About 35,000 acre-feet per year of the District's expensive imported water purchases are used for injection into wells drilled along the coast. This water serves two purposes: it halts further intrusion of seawater and also replenishes the basins.

Notwithstanding this years abundance of water in California, Southern California's gradual loss of entitlements to both Colorado River and Northern California water and recent drought history have convinced us that a more reliable supply of water for these seawater barrier wells must be developed to protect our critical groundwater resource.

The District's goal is to totally eliminate the use of imported water and replace it completely with recycled water and local stormwater runoff. The District has an aggressive program to increase the use of recycled water.

Alamitos Barrier Recycled Water Project

Working together with the Orange County Water District and the City of Long Beach, the District is proceeding with plans to build a 5,000 acre-feet per year reclamation plant to replace, initially, 50% of the imported water now being injected into the Alamitos Seawater Barrier, one of three widespread barrier systems for which the District provides water. The second stage will expand the treatment plant to provide 100% substitution of imported water. Orange County is involved because this particular barrier system extends into Orange County and the City of Long Beach has title to the recycled water to be fed to the new plant. The proposed plant is consistent with the Metropolitan Water District's new Integrated Resources Plan, which anticipates 700,000 acre-feet per year of additional water reclamation by the year 2010.

Design work for the project is underway and a bid package will be issued in June for final designs and construction, which is targeted to start late 1995. We anticipate plant startup in mid 1998.

Feedwater for the project will be recycled water that would otherwise be discharged into the San Gabriel River. Advanced treatment equipment, including microfiltration and reverse osmosis, will be put in place to purify the water and meet the stringent requirements of the State Department of Health Services and the Regional Water Quality Control Board.

The capital cost is currently pegged at \$23 million. Even though one-half of this will be paid by the Orange County Water District, this project is an ambitious undertaking and the first major construction project for our small district. The District's replenishment assessment, which is passed through to the ratepayers, will have to be increased on the order of 9% over the next three years to provide for the construction. This is on top of increases to cover the escalating cost of imported water for replenishment.

Amortizing the construction cost, adding operation and maintenance costs and backing out anticipated reimbursements from the Metropolitan Water District's Local Projects Program, the cost of water produced from the plant will be around \$515 per acre-foot, which is more than the current cost for imported water, although well within the range of costs typically experienced.

We therefore need federal funds to ease the burden on our local ratepayers and we sincerely thank the California Water Commission for recommending this project for your consideration. A total of \$5,750,000 is requested through fiscal year 1998, \$1,775,000 of that in fiscal year 1996, which will cover 25% of the project's construction cost. Federal assistance will enhance project economics and ensure the viability of our precious groundwater basins into the next century.

We would be pleased to answer any questions you might have.

LETTER FROM JOSEPH L. CAMPBELL, PRESIDENT, CONTRA COSTA WATER DISTRICT

The Honorable Pete V. Domenici, Chairman
 Committee on Appropriations
 Subcommittee on Energy and Water Development
 United States Senate
 SH-328 Hart Senate Office Building
 Washington, D.C. 20510-3101

March 16, 1995

Dear Senator Domenici:

The Board of Directors of the Contra Costa Water District (CCWD) requests your assistance on a matter affecting the ability of the District to provide a reliable supply of water to more than 400,000 residents of central and eastern Contra Costa County. The Contra Costa Canal is a federal facility, part of the Central Valley Project (CVP). The 48-mile Canal is the primary source of municipal water and also provides water for some of the largest remaining manufacturing employers in the San Francisco Bay Area. The District operates the Canal and, since 1972, has paid for and provided all maintenance of the canal, a cumulative saving of many millions of dollars to the federal treasury.

Two recent federal actions established a requirement for a fish screen at the beginning of the Contra Costa Canal. The requirement for a fish screen is a substantial obligation beyond the normal operational maintenance costs borne by the District. The District has not yet begun to design the facility, but for planning purposes it estimates that such a facility could cost between \$2,000,000 and \$10,000,000. The two federal requirements are:

- (1) P.L. 102-575, Sec. 3406(b)(5), requires the Secretary of Interior to screen the Canal intake. Recognizing that the requirement for a fish screen is a federal obligation, P.L. 102-575 specifies a funding formula for the fish screen that commits the federal government to provide 75% of the total cost of the project, with the State of California providing 25%.
- (2) A U.S. Fish & Wildlife Service (FWS) biological opinion on delta smelt, issued in September 1993 for CCWD, requires completion of the screening of the Canal intake by October 1998. Although the FWS established a deadline for the project, it has declined to place the Contra Costa Canal screen on its list of priority projects for which it proposes spending \$6 million in FY 96.

To facilitate compliance with the two requirements, the District began scoping work *at its own expense* to assure that project can be completed by the deadline. To date, the District has spent \$100,000 in FY 95 to construct a fish monitoring station, facilitating a study of the actual fish take at the Contra Costa Canal intake. An agreement is being completed under which the District and the USBR will share the costs of the study. Results of the ongoing study will help determine the design of facilities needed to protect aquatic species at the intake.

In addition, under the Central Valley Project Improvement Act (CVPIA), Title 34 of P.L. 102-575, the District pays approximately \$1,250,000 a year into the CVP Restoration Fund, which is designated specifically to pay for environmental mitigation activities. Section 3407 (a) specifies the Contra Costa Canal fish screen as one of the mitigation projects to be supported by the Restoration Fund.

The District submits two requests of the Congress with regard to these obligations:

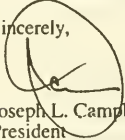
- (1) The District requests a line item appropriation to the Contra Costa Water District in the FY 96 Bureau of Reclamation budget of \$80,000, which is the sum endorsed by the California Water Commission. This will support work to determine fish screening requirements, define an approach, develop a design concept, project schedule and funding plan. The funding may be a general obligation or a specific obligation from the CVP Restoration Fund.

- (2) The District further requests the appropriation of \$1,250,000 for the initial federal commitment to support field work and design. This is the approximate amount of the District's contribution to the CVP Restoration Fund. Appropriation of this amount from the District's contribution will provide sufficient flexibility that, when the preliminary studies are completed, the District will be able to move ahead promptly on the project dictated by the studies. In FY 97, the District will seek sufficient funding to complete the federal obligation for construction cost of the facilities dictated by the scoping work.

Further, the District requests that the District's annual payments into the CVP Restoration Fund be specifically designated for the payment of the federal obligations toward the Contra Costa Canal fish screen and directly related facilities, as defined in Sec. 3406(b)(5), until the federal obligations are fully discharged.

The District appreciates the cooperation of the Congress in this matter. With these assurances, the District is prepared to move forward as rapidly as possible to comply with the federal requirement for screening of the Contra Costa Canal intake.

Sincerely,



Joseph L. Campbell
President
Board of Directors

PREPARED STATEMENT OF MAYOR ALAN AIROLDI, TOWN OF CORTE
MADERA, CA

Mr. Chairman: My name is Alan Airoidi, and I am the Mayor of Corte Madera, California.

I am submitting this statement to request, respectfully, that the Subcommittee on Energy and Water Development maintain the President's FY 96 Budget allocation of \$234,000 for the feasibility study listed under Marin County Shoreline - San Clemente Creek.

The Town of Corte Madera is located on San Francisco Bay just north of the Golden Gate Bridge. This area is an ideal location and desirable place in which to live. Unfortunately, our location on San Francisco Bay has placed us at the mercy of serious tidal flooding problems. This flooding occurs in the area along San Clemente Creek and is caused by a combination of high tides, ground subsidence and storm water runoff. We certainly have had our share of wet weather this year. But tidal flooding can even occur in dry weather. And it is predicted to increase with the passage of time because the area is settling as the bay mud which lies underground continues to consolidate.

The Town of Corte Madera is committed to maintaining the community's safety and quality of live. To that end, the Town and the U. S. Army Corps of Engineers negotiated a Cost Sharing Agreement to conduct a Feasibility Study which will define the flooding problem and develop a plan for Congressional action.

The Town Council approved the Cost Sharing Agreement and has budgeted funds to pay its full share of all local costs.

Last year, with the assistance of the Subcommittee, the Town secured funding for the Feasibility Study which is well underway and scheduled for completion next year.

The President's FY 96 Budget includes funds to complete the study. I request, respectfully, that you maintain the FY 96 budget allocation of \$234,000 for the Marin County Shoreline - San Clemente Creek Feasibility Study.

In addition, I request, respectfully, that you add on an allocation of \$150,000 to the FY 96 Budget to provide for the seamless transition into pre-construction engineering and design which the Corps has the capability of conducting in the later part of FY 96.

Thank you very much for your continuing support for this important project.

PREPARED STATEMENT OF GAIL L. PRINGLE, PRESIDENT OF THE BOARD OF DIRECTORS, CHANNEL ISLANDS BEACH COMMUNITY SERVICES DISTRICT

Mr. Chairman and members of the Subcommittee, my name is Gail Pringle, President of the Board of Directors of the Channel Islands Beach Community Services District, and Member of the Board of Directors of the Port Hueneme Water Agency. The Port Hueneme Water Agency ("Agency") was formed by the City of Port Hueneme and the Channel Islands Beach Community Services District in July of 1994 as a Joint Powers Agency governed under the laws of the State of California. I am here today, together with Port Hueneme City Councilmember, Orvene Carpenter, President, Board of Directors, Port Hueneme Water Agency, to seek the Subcommittee's support for our request to receive \$2 Million in cooperative funding from the United States Bureau of Reclamation for a Brackish Water

Reclamation Demonstration Facility ("Facility") during Federal Fiscal Year 1995-96.

PROJECT SUMMARY

The Agency's proposed Sub-Regional Water Quality Improvement Project is designed to improve the quality and increase the reliability of municipal and industrial drinking water supplies for four public water purveyors in southwest Ventura County, California. Those four public water purveyors are: the City of Port Hueneme, the Channel Islands Beach Community Services District, Naval Construction Battalion Center - Port Hueneme, and the Naval Air Weapons Station - Pt. Mugu. The cornerstone of the project is a Brackish Water Reclamation Demonstration Research Facility, which will serve as a state-of-the-art sub-regional water treatment plant.

The Facility will provide 3.9 million gallons per day (mgd) of water treated to the quality of imported State water. The 3 desalination technologies considered most applicable to reclaim the local sources of brackish groundwater are reverse osmosis, nanofiltration, and electro dialysis reversal. The Facility would be constructed to provide 1.3 mgd of treatment capacity in a side by side, full-scale, operational demonstration of each technology. By applying these different technologies to the same water source, long-term operating and economic data will be collected and compared.

The Facility will assist other communities to select and understand the most appropriate technology for their specific application. The facility could become a location to provide research opportunities and waste treatment operator training. Accordingly, the availability of this demonstration research facility in California should make it easier for other communities to successfully implement brackish water desalination and groundwater reclamation, as a major element in the strategy of local compliance with the increasingly stringent regulatory standards found in the Safe Drinking Water Act Amendments. Also, in resolving problems with the contamination of local groundwater supplies, and increasing water supplies to drought sensitive areas.

BACKGROUND

Currently, the four agencies listed above utilize brackish groundwater from the Oxnard Plain Groundwater Basin, which is listed in California Department of Water Resources Bulletin 118 as a critically overdrafted basin and is under active basin management by the Fox Canyon Groundwater Management Agency. The groundwater used by these agencies is extracted locally, from deep aquifer wells increasingly subject to seawater intrusion from along the coast, or delivered from upper aquifer wells located inland by the United Water Conservation District. Both groundwater sources are deemed brackish, in that they have a total dissolved solids (TDS) content of greater than 1000 mg/l and a hardness in excess of 500 mg/l. By comparison, water quality in the Washington, D.C. urban area averages 217 mg/l, TDS and 126 mg/l in Hardness.

The Agency was formed to secure a safe, reliable, high quality, environmentally sound and economical water supply for the City of Port Hueneme, the Channel Islands Beach Community Services District, Naval Construction Battalion Center - Port Hueneme, and the Naval Air Weapons Station - Pt. Mugu. Prior to the formation of the Agency, increasing overdraft of the local groundwater basin, seawater intrusion, poor water quality and aging infrastructure had prompted each of the aforementioned participants to independently pursue water supply and quality improvement projects.

PROJECT DESCRIPTION

The Agency, in order to provide high quality water, is implementing a Water Quality Improvement Program which involves discontinuation of groundwater extractions from deep aquifer wells located along the coast, desalination of local groundwater sources, and blending of desalinated groundwater with a limited amount of imported State Water Project water for peaking purposes through the Calleguas Municipal Water District, a member agency of the Metropolitan Water District of Southern California. As a result of the conjunctive use of these surface water sources, and desalinated groundwater, the total groundwater extractions in the overdrafted Oxnard Plain groundwater basin will be reduced, helping to bring the basin into safe-yield, and reducing the threat of seawater intrusion along the coast.

The Agency's project involves the construction of a 3.9 mgd regional water treatment plant, the Facility, and various transmission pipelines to deliver both local groundwater and State Project Water. The primary source of local groundwater for the Facility will be the United Water Conservation District. This local groundwater is highly mineralized and contains trihalomethane precursors. To treat this water, a combination of three desalination technologies will be used. State Water Project water will be blended with desalinated local groundwater through existing and proposed transmission pipelines. To optimize the utilization of the water treatment facilities, the proposed plant's capacity is based on current minimum diurnal water demands of the project participants. Peak day and fire flow demands will be met by State Water Project water deliveries.

The estimated capital cost of the Program is \$14.1 Million (in 1996 dollars). Of this amount, the capital cost of the Demonstration Research Facility is estimated to be \$9.0 Million (in 1996 dollars). The Agency is requesting \$2 Million in cooperative funding from the Bureau of Reclamation for Federal Fiscal Year 1995-96 pursuant to the authorization found in Section 1605 of the Reclamation Wastewater and Groundwater Study and Facilities Act (Title XVI) of Public Law 102-575. This section authorizes the Bureau to provide cooperative funding to local water agencies up to 50 percent of the total cost of the facility. The construction and operation of the Facility will provide an opportunity for the Federal government to enter into a unique partnership with local water agencies to obtain hard research data from the operation of a full-scale, groundwater desalination treatment facility in Ventura County, California. To the best of our knowledge, there are no such Research Facilities, operating at full-scale in the United States, using three desalination technologies simultaneously.

The nearly 45,000 Federal and local customers of the Agency are expected to derive significant benefits from the project including improved water quality, an increase in economic development and job creation resulting from the construction of a long-term, safe and reliable high quality water system, which is environmentally sustainable, and meets current and proposed water quality drinking standards under the Safe Drinking Water Act Amendments.

The delivery of imported State Water Project Water will also allow the reduction of groundwater from coastal wells threatened by seawater intrusion. Relocating groundwater extractions from the coastal to inland groundwater basin recharge areas operated by the United Water Conservation District will assist the basin in achieving safe-yield in the 2010.

Benefits accruing to the Port Hueneme Water Agency's customers which result from the implementation of the Water Quality Improvement Program, including the Facility, include the following:

1. elimination or reduction in the need for expensive and highly inefficient home water softening units, thereby reducing the need to desalinate wastewater effluent proposed for reclamation in the future.
2. reduction in the cost of soap and cleaning products for those water customers who do not provide home water softening.
3. reduction in the costs of repairs and replacement of plumbing, plumbing fixtures and water using appliances.
4. reduction in the cost of purchasing bottled water and/or household reverse osmosis units.
5. avoidance of potential penalties associated with the staged reductions in groundwater pumping allocations imposed by the Fox Canyon Groundwater Management Agency.
6. avoidance of additional Water Treatment Costs imposed by Federal and State Regulatory Agencies.

Thank you very much for the opportunity to address the Subcommittee.

PREPARED STATEMENT OF THE CITY OF STOCKTON, CA

Mr. Chairman and Members of the Committee:

The City of Stockton supports the following Corps of Engineers and Bureau of Reclamation water, flood control and fishery projects:

1. Stockton Metropolitan Area Study (Proposed new project) and Farmington Dam Evaluation	\$ 800,000
2. Sacramento/San Joaquin Delta Investigation	\$ 800,000
3. American River Watershed	\$ 3,000,000
4. Auburn-Folsom South Unit	\$ 2,000,000
5. South Delta Barriers	\$ 500,000
6. American River Folsom South Optimization Study	\$ 400,000

U.S. CORPS OF ENGINEERS

STOCKTON METROPOLITAN AREA STUDY AND FARMINGTON DAM EVALUATION

\$ 800,000

The Stockton Metropolitan Area Study is a proposed new project. The Federal Emergency Management Agency (FEMA) has recently completed a study of the Stockton Metropolitan area. The study concludes that much of the Stockton Metropolitan area does not have protection from a 100-year flood. The affected area includes all of downtown Stockton and the most heavily populated areas of the community. The proposed study would be a General Investigation Survey (Reconnaissance Report) which would take between one and one and one-half years to complete.

Farmington Dam is an existing Corps of Engineers flood control project in San Joaquin and Stanislaus Counties. It is normally dry, but controls flows from the Little John Creek stream group during flood events. The dam has some seepage problems. Assuming the seepage problem can be eliminated, Farmington shows some promise of being able to provide water to Stockton East Water District from its Stanislaus River Project with minimal additional infrastructure.

SACRAMENTO-SAN JOAQUIN DELTA INVESTIGATION

\$ 800,000

This important investigation is being conducted jointly with the California Department of Water Resources. The study will examine alternatives to improve flood control, water supply and environmental concerns such as riparian vegetation and water quality in the Delta. This study is of paramount importance in regard to current and future California Water needs.

AMERICAN RIVER WATERSHED

\$ 3,000,000

At the direction of Congress, studies have been conducted to evaluate expandability and gating aspects of Auburn Dam; re-evaluate other methods of flood control including levee improvements, and study coordinated operational procedures in order to determine if Folsom can be operated differently to provide additional flood protection to Sacramento; and develop criteria to increase the available flood control space in Folsom in conjunction with the Bureau and local interests. The Corps was also specifically directed to study the potential for a reservoir at Deer Creek south of Folsom. This is of particular interest to San Joaquin County as it offers a potential water supply source from the Folsom South Canal.

BUREAU OF RECLAMATION

AUBURN-FOLSOM SOUTH UNIT

\$ 2,000,000

This project is funded only for maintenance of lands acquired for the Auburn Dam and for miscellaneous personnel support. The City of Stockton is concerned that the project is not addressing the water needs of this area as originally intended. The Bureau should be directed to consider the extension of the Folsom South Canal and the provision for water supply for San Joaquin County. We also recommend that the study include the evaluation of various sized multipurpose projects at the Auburn site. To this end, the City requests that the budget be increased from \$2,137,000 to \$2,182,000 to support these additional investigations.

SOUTH DELTA BARRIERS

\$ 500,000

Last year the California Water Commission supported a funding add-on request to allow the Bureau to participate with the State in constructing a barrier to improve water quality in the South Delta. The request came from the South Delta Water Agency and was supported by the City. The City continues its support of this project.

AMERICAN RIVER/FOLSOM SOUTH OPTIMIZATION STUDY

\$ 400,000

This study could provide an opportunity to gain additional water for the City's watershed. The study will evaluate plans for concurrent surface and groundwater use from existing storage developments and tributary streams to meet Folsom South Area water needs and provide suitable instream flows for fishery and recreation purposes in the lower American River.

I, FRANCES HONG, do hereby certify as follows:

I am the duly appointed, qualified City Clerk of the City of Stockton, a California municipal corporation; as such City Clerk, I am the custodian of the official records of the City Council of said City. The attached Resolution is a full, true and correct copy of Resolution No. 95-0091 of said City Council, which was adopted by the City Council, on March 6, 1995.

IN WITNESS WHEREOF, I have hereto affixed my hand and the seal of the City of Stockton on March 7, 1995.

FRANCES HONG, CITY CLERK
CITY OF STOCKTON

By *Lisa J. Black*
Deputy

STOCKTON CITY COUNCIL

WHEREAS, on March 28, and 29, 1995, appropriate committees of the Congress of the United States will conduct hearings to consider federal appropriations for water, flood control, and fishery projects for Fiscal Year 1996; and

WHEREAS, several projects to be considered at said Congressional hearings will directly impact the City of Stockton and its environs; and

WHEREAS, the expeditious construction of said projects is required to protect the health, welfare and safety of the residents of this area; now, therefore,

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF STOCKTON AS FOLLOWS:

1. That the City of Stockton does hereby support the appropriation by the Congress of the United States of funds for Fiscal Year 1996 for the planning, continuation and completion of flood control and reclamation projects, namely:

- a. Stockton Metropolitan Area Study and Farmington Dam Evaluation
- b. Sacramento-San Joaquin Delta Investigation
- c. American River Watershed
- d. Auburn-Folsom South Unit
- e. South Delta Barriers
- f. American River/Folsom South Optimization Study

2. That the "Statement by the City of Stockton, California, Before the Committee on Appropriations, Subcommittee on Energy and Water Development of the U. S. Senate"; and the "Statement by the City of Stockton, California Before the Committee on Appropriations Subcommittee on Energy and Water Development of the U. S. House of Representatives" ("STATEMENTS"), are hereby approved as the official STATEMENTS of the City Council. Copies of

said documents are attached as Exhibits "A" and "B" respectively, and incorporated by this reference.

3. That the Mayor is hereby directed to forward copies of said STATEMENTS to the appropriate Congressional Committees and to the City of Stockton's representatives in the Senate and House of Representatives, and the City Manager will monitor and initiate proper follow-up communication and correspondence to reflect the City Council's position.

PASSED, APPROVED and ADOPTED MAR -6 1995

/S/ JOAN DARRAH

JOAN DARRAH, Mayor
of the City of Stockton

ATTEST:

/s/ FRANCES HONG

FRANCES HONG, City Clerk
of the City of Stockton

PREPARED STATEMENT BY JORGE CARRASCO, GENERAL MANAGER, EAST
BAY MUNICIPAL UTILITY DISTRICT

Honorable Pete V. Domenici, Chairman
Subcommittee on Energy and Water Development
Committee on Appropriations
U.S. Senate
Washington, DC 20510

March 29, 1995

Dear Mr. Chairman:

On behalf of EBMUD, I am submitting the following testimony for the record to urge you to provide federal assistance in the amount of \$250,000 to support a Federal, State, and local partnership to respond to water quality threats posed by the abandoned hard rock Penn Mine site located in Calaveras County, California.

The East Bay Municipal Utility District is located in Oakland, California. We provide water supply and wastewater treatment services to more than one million people in the communities of the East Bay. In carrying out these responsibilities, we manage a water distribution system comprised of 3,800 miles of water conveyance and treatment pipes that carries an operating distribution capacity of 884 million gallons of drinking water supplies. Our responsibilities begin in the Sierra Nevada foothills and end a ninety mile journey in the Bay area. We manage our watersheds and reservoirs in a cost-effective and environmentally protective

manner to ensure that our communities receive the highest quality drinking water. We also take pride in managing our resources in a manner that contributes to the preservation and enhancement of fish and wildlife.

With this background, let me explain why the District is requesting the Subcommittee's support for Bureau of Reclamation funding assistance to participate in a demonstration of an intergovernmental partnership to respond to an important water quality problem.

In 1861, the Penn Mine opened adjacent to the Mokelumne River and intermittently for over 75 years produced copper, zinc, lead, gold, and silver. The last significant mining activity occurred during World War II, at which time the sole reason for operations was to meet governmental munitions requirements. In fact, the federal government contracted for the mining. In the course of the mining operations, waste rock piles were created that affected two tributaries of the Mokelumne River. Over the years, it became apparent that fish kills were attributable to the mine site's toxic drainage. In addition, the discharge was entering into the District's Camanche Reservoir, which we operate for water supply and flood control purposes.

In 1978, East Bay Municipal Utility District responded to a request from the State of California Central Valley Regional Water Quality Control Board and the California Department of Fish and Game to implement a temporary abatement program that would control acid mine waste discharges that were creating fish kills. We undertook this effort as good Samaritans because the discharge was flowing across a limited portion of our watershed property buffer zone. We were never responsible for this pollution problem and our only involvement was to assist the State in its efforts to abate a problem for which no one could be found responsible.

The abatement program we implemented with the State involved the diversion of rainfall and runoff away from the waste rock piles and other areas, and containing the diverted runoff in a pond where it could be held or treated and subsequently discharged without damage to the environment. We never benefited from the mining operations nor did we, or do we, own the land that generates the acid mine discharge. The abatement program has succeeded in reducing the drainage by ninety percent and eliminating substantial amounts of pollutants from entering the river. However, this is only a temporary solution and, most importantly, it does not address the source of the discharge--the actual waste rocks, tailings, and mining shafts.

In 1992, EBMUD and the Central Valley Regional Water Quality Control Board undertook a study to develop a long-term solution for the site. In the meantime, however, our actions have been challenged in several legal actions seeking to impose on us full liability for a complete site cleanup. We, in turn, have filed a cost recovery action against the federal government based on its role operating the mine during World War II.

The result of all this litigation over liability is that all good Samaritan cleanups of abandoned mines in California have been brought to a halt. This unfortunate consequence is not likely to be resolved legally or legislatively unless a long-term solution can be found and implemented at Penn Mine. It is towards that end that EBMUD is now proposing a new approach to Penn Mine, one that ends the litigation and opens the door for good Samaritan cleanups--using private and state funds--at thousands of sites in California and throughout the West.

In California, acid rock drainage from abandoned mines is considered to be the number one surface water quality problem. These toxic discharges are one of the many threats to the Bay-Delta, mitigation for which the Bureau and other water users are being forced to give up water supplies. In the Central Valley of California, where our particular situation exists, downstream urban communities are committing significant taxpayer funds to treat water supplies to remove contaminants that often are created by these sites. For example, in Sacramento, the city and county may incur billions of dollars in costs to acquire the necessary pollution control technologies. These costs are required because the receiving waters are

already burdened by upstream abandoned mines discharges among other pollution sources. Throughout the Central Valley this situation exists, exposing public agencies and their communities to millions of dollars in hidden cleanup costs for which they bear no responsibilities.

Plainly, it makes more sense to clean up this pollution at the source. It is clear that we need a mechanism that will bring those with the expertise and experience in engineering and water resource management together to develop and implement a long-term solution at Penn Mine. The first step toward this goal was taken last year when Congress directed the Bureau of Reclamation to investigate the Penn Mine and Sacramento watershed situations and consider a process to respond and protect these water resources from the toxic effects of acid mine discharges.

It is this mechanism that I want to describe and recommend that you support with seed funding.

EBMUD is proposing that we work together in a three-way partnership among local, state, and federal governments to solve the problem. Over the past year, we have been working with the State of California, Bureau of Reclamation, U.S. Environmental Protection Agency, the state water agencies, and environmentalists to develop consensus on a technical solution for the site. We appear to have consensus on an on-site waste rock removal/encapsulation plan, which is estimated to cost \$16-20 million. We believe that no one group should be asked to shoulder the entire burden of dealing with the mine site. Therefore we reached a conclusion that a cost-sharing partnership of federal, state and local agencies could provide a way to solve the solution at this site. EBMUD and the state are prepared to commit a total of \$10 million for this purpose and are asking that the federal government provide the remaining \$6-10 million. This partnership will provide a model for achieving progress at other abandoned sites throughout the West.

We have identified the lead federal agency to be the Bureau of Reclamation for one simple reason. The Bureau has a tremendous stake in resolving these water quality problems. As a major water supplier for agricultural and municipal needs through projects like the Central Valley Project, the Bureau's expertise and experience is uniquely suited to work to develop and implement solutions. Solving these water quality problems at their source will provide all water agencies in the Central Valley greater flexibility while ensuring the maximum protection and highest quality for the water supply needs. The benefits to the Bureau will also include a collegial framework by which to work with State and local water agencies to find "non-flow" approaches to restoring the Bay-Delta. And lastly, this partnership is consistent with the Bureau's stated new mission to manage and to protect water resources in a way that builds relationships that allows cost-effective solutions to be approved in a timely manner.

The success of this partnership requires that all parties agree on the approach to address the water quality threat. This can only occur if we conduct a more thorough evaluation of the site's characteristics and prepare appropriate environmental documentation. This will substantiate the technical approach and refine the cost of the long-term solution. Our past activities at the site suggest that the cost to conduct the site characterization and environmental documentation to be approximately \$500,000. We request that you provide \$250,000 in FY96 to the Bureau of Reclamation to work with us to begin this important first step in the partnership. We further ask that you direct the Bureau to include \$10 million in its FY97 budget to fund the federal share of the cleanup.

It is important to note that we do not request this Subcommittee's support without investing substantial time and energy to form the nucleus for partnership. We have met with the Bureau of Reclamation Commissioner Dan Beard to advise him and his staff on the matter. We have worked closely with Roger Patterson, Mid-Pacific Regional Director for the Bureau, to develop the framework for which we are requesting your support. They endorse and

support the partnership approach and have indicated an interest in participating if liability concerns can be addressed.

Funding of this phase of the partnership will also serve to solidify the commitments of those groups that have been working to develop a meaningful solution to what once seemed an intractable problem. We have crafted a memorandum of understanding with the U.S. Environmental Protection Agency, U.S. Bureau of Reclamation, California State Water Resources Control Board, Regional Water Quality Control Board, Environmental Defense Fund, Committee to Save the Mokelumne River, and ourselves. Federal funding of the studies and documentation will ensure formal endorsement of the MOU and its mandate to develop a cooperative cleanup plan by date certain.

This MOU is the result of yeoman-like efforts by federal, State and local officials. It acknowledges the importance of addressing abandoned mine-related water quality problems. It acknowledges that the inability to respond will interfere with the operating flexibility of water projects and impose costly pollution control requirements on municipal water districts and federal and state water project contractors. The MOU establishes a consensus approach among the various parties at interest and for the first time establishes an understanding that each signatory to the MOU will contribute a meaningful share of funding to the abandoned Penn Mine site cleanup. Perhaps no less important, the MOU establishes a role for the key local environmental interest groups as well as State and federal natural resource agencies to participate in the review of a cleanup plan.

Finally, the MOU provides for a commitment of funding from the California State Water Resources Control Board and the East Bay Municipal Utility District to cleanup the site. I am pleased to inform you that both the State and the East Bay Municipal Utility District have initiated the steps to authorize such funding. Assuming that you and your colleagues approve the request for Bureau of Reclamation participation, I can pledge that we will be in a position to commit our share of the contribution.

Mr. Chairman, I understand the fiscal constraints that you and your colleagues must confront in what can best be termed an austere budget year. Our request is a measured one that takes into account these fiscal pressures. Because we are prepared to commit our own limited and strained resources to address this issue, a situation that is not our responsibility but inherited nonetheless, we hope you will recognize the importance of joining in this cost-effective approach and recommend our request for \$250,000.

On behalf of East Bay Municipal Utility District, thank you for your consideration and we would be happy to respond to any questions.

Sincerely,


JORGE CARRASCO
General Manager

PREPARED STATEMENT BY ELLEN JOHNCK, EXECUTIVE DIRECTOR, BAY PLANNING COALITION

Founded in 1983, the Bay Planning Coalition is a membership-based, non-profit organization representing the broad spectrum of maritime and related shoreline business and industry including the five major public and private port authorities, oil refineries, recreational marinas, and local government. We exist to advocate the reasoned, balanced and fair regulation of the use of water and land in the S. F. Bay regional and thus ensure the successful

Implementation of water resource development projects. We are the San Francisco Bay regional component of the California Marine Affairs and Navigation Conference (C-MANAC).

In summary our points are as follows:

1. we support the President's FY 1996 Civil Works Budget for harbor construction and related missions, with limited additional funding for a specified number of projects (as indicated on the attached list); and also the Budget augmentation for the Corps' Regulatory Program for a wetlands administrative appeal process;
2. we also specifically support and want to underscore the importance of funding for the cooperative planning process for dredged material disposal, known as the Long-Term Management Process (LTMS) in the S. F. Bay region;
3. we object to the Administration's proposal to deemphasize the Corps mission in the areas of recreational harbor maintenance, as these harbors comprise a significant cumulative economic contribution in the Bay Area; and flood control, as there is no other entity with the strategic capability to carry out this mission, other than the Corps;
4. we recommend that the U.S. Congress, in its decisionmaking in the Appropriations process adhere to these two objectives:
 - a) emphasize the cost savings to be achieved through Corps restructuring, including the redefinition of the roles of its various organizational office levels, and the streamlining of the permit process in the Regulatory Program as a more cost-effective way to achieve budget reduction goals rather than by eliminating missions; and
 - b) direct funds to high priority programs, such as navigation improvements and construction, including dredging, which build our nation's assets and provide long-term investment in economic growth.

We are sensitive to and agree with the very determined efforts of both the Administration and the 104th Congress to implement substantial budget cuts. However, the Administration's proposed cuts and deemphasis on important Corps' missions is not synchronized with the decisionmaking on the high-priority programs necessary to build the nation's assets. The Federal capital investment in the nation's maritime infrastructure has produced a significant national asset which benefits trade, and trade is a tool of economic growth.

The projects proposed for additional funding on the C-MANAC list deserve support based on the philosophy that the reference point for decisionmaking is to continue the necessary investment and not allow our assets to decline.

The projects on the C-MANC list are the economic linchpin for the nation, the state of California and the S. F. Bay region in terms of jobs and trade dollars.

The new economic top dog is international trade and exports. The California Chamber of Commerce reported in 1994 that over \$200 billion in imports and exports are now flowing through California - - and increase of more than \$80 billion in the last 10 years, or about 3x the 1982 level. This is 1/5 of total U. S. exports. S. F. Bay area exports in 1991 were \$11.6 billion, up from \$7.6 billion in 1988. The Bay Area accounts for 21% of total West Coast exports.

Trade is estimated to account for 50% of California's real economic growth and most of the credit goes to the existence of the California port system. Our modern ports now serve as intermodal gateways for waterborne, airborne and surface borne cargo, and this conjunction of transportation modes is vital to our region's ability to compete in international trade. Further, an integral component of the marine infrastructure, which until recently has been like a forgotten stepchild, is dredging. Most harbors around the country require regular dredging of its shipping channels to provide for adequate depths and the safety of all vessels engaged in navigation and commerce. Of particular note is a very important planning project for the S. F. Bay region, and that is the Long-Term Management Strategy for Dredged Material Disposal (LTMS).

Thank you for your consideration of our recommendations to adopt a methodology for decisionmaking that applies long-term investment for economic growth in our maritime assets.

(Amounts in Thousands)
FY 1995

FY 1996 C-WAC
RECOMMENDATIONS
(IF GREATER
THAN BUDGET)

PURPOSE: BUDGET (OR ADDITIONAL) AMOUNT

FY 1996
PRESIDENT'S
BUDGET

FY 1995
CONFERENCE
REPORT

BALANCE
AFTER
FY 1994

TOTAL COST
C OF E

PROJECT

POTENTIAL NEW SHORELINE PROTECTION STUDIES

Moss Landing Harbor/Erosion Study	400	0	0	0	100	Initiate Recon Report
Peninsula Beach/City of Long Beach	350	0	0	0	300	Initiate Recon Report
Ventura and Santa Barbara County Shoreline	400	0	0	0	300	Initiate Recon Report

SHORELINE PROTECTION STUDIES IN PROGRESS

City of Huntington Beach	875	133	112	0	200	Complete Recon Report
Encinitas	400	275	231	169	M/C	Continue Feasibility Study
San Diego County, Cities of Oceanside and Carlsbad	1,910	600	150	300	M/C	Continue Feasibility Study
Malibu Coastal Area	875	200	168	200	M/C	Complete Feasibility Study
Marin County Shoreline, San Clemente Creek	1,122	379	140	155	M/C	Complete Feasibility Study
Rancho Palos Verdes	1,230	320	0	0	200	Continue Feasibility Study
San Francisco County, Ocean Beach	1,100	280	185	125	M/C	Complete Feasibility Study
Silver Strand Shoreline - Coronado	875	658	133	112	200	Initiate Feasibility Study

POTENTIAL NEW SPECIAL STUDIES

Coast of California, Storm & Tidal Waves, Central Coast Region	2,700	0	0	0	0	
Southern California Oil Spill Emergency	500	0	0	0	0	

NOTE:
M/C= NO CHANGE
M/R= NOT RECOMMENDED

(Amounts in Thousands)
FY 1996

FY 1995
CONFERENCE REPORT ALLOWANCE
FY 1996 PRESIDENT'S BUDGET
FY 1996 C-MARC RECOMMENDATIONS (IF GREATER THAN BUDGET)
PURPOSE: BUDGET (OR ADDITIONAL) AMOUNT

POTENTIAL NEW NAVIGATION STUDIES

PROJECT	TOTAL COST C. OF E.	BALANCE AFTER FY 1994	CONFERENCE REPORT	WORK ALLOWANCE	FY 1996 PRESIDENT'S BUDGET	FY 1996 C-MARC RECOMMENDATIONS (IF GREATER THAN BUDGET)	PURPOSE: BUDGET (OR ADDITIONAL) AMOUNT
Moss Landing Harbor, Elthorn Slough	400	0	0	0	0	0	
San Leandro Bay - Alameda County	375 1/2	375	0	0	0	0	
San Francisco Bay, Bar Channel	500	0	0	0	240	240	W/C Initiate Recon Report
Southampton Shoal Channel	500	0	0	0	240	240	W/C Initiate Recon Report
Stockton Deep Water Ship Channel (Deepening)	650	650	0	0	0	0	650 Initiate and complete Recon Report ✓

1/ Includes \$50 prior to 9/30/78

NAVIGATION STUDIES IN PROGRESS

Crescent City Harbor	500	382	100	132	250	250	W/C Complete Feasibility Study
Marina del Rey and Ballona Creek	875	737	212	178	200	200	W/C Complete Recon Report; Initiate Feasibility Study
Report Bay Harbor	990	472	0	0	250	250	W/C Continue Feasibility Study
Little Harbor	875	875	300	175	225	225	W/C Complete Recon Report; Initiate Feasibility Study
Port Huamene	1,250	750	300	100	300	300	W/C Continue Feasibility Study
San Francisco Harbor	1,760	1,375	825	0	100	100	W/R Initiate Feasibility Study

NEW PRECONSTRUCTION ENGINEERING AND DESIGN

Crescent City Harbor	630	(150)	0	0	(50)	(50)	100 Initiate Design ✓
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CONTINUE PRECONSTRUCTION ENGINEERING AND DESIGN

Humboldt Harbor and Bay (Deepening)	7,500	(660)	(250)	(125)	(410)	(410)	W/C Continue Design
Moyo River and Harbor (Breakwater)	20,000	(1,039)	(809)	(480)	(559)	(559)	W/R Complete Design
Port of Long Beach	35,000	(750)	(0)	(0)	(750)	(750)	W/C Complete Design
San Rafael Canal	19,100	(942)	(565)	(692)	(250)	(250)	W/C Complete Design
Santa Barbara Harbor	4,670	(174)	(540)	(124)	(50)	(50)	W/C Complete Design
Santa Monica Breakwater	7,510	(400)	(400)	(50)	(350)	(350)	W/C Complete Design

(Amounts in Thousands)
 FY 1996

PROJECT	TOTAL COST C OF E	BALANCE AFTER FY 1994	FY 1995		FY 1996 PRESIDENT'S BUDGET	FY 1996 C-MANC RECOMMENDATIONS (IF GREATER THAN BUDGET)	PURPOSE: BUDGET (OR ADDITIONAL) AMOUNT
			CONFERENCE REPORT	WORK ALLOWANCE			
			POTENTIAL NEW CONSTRUCTION START				
Long Beach Harbor (M)	35,000	35,000	0	0	0	500	Initiate Construction ✓
San Diego River and Mission Bay (M)	2,000	2,000	0	0	0		
San Rafael Canal (S)	19,100	17,932	565 1/	692 1/	250 1/	2,950	Initiate Construction ✓
Santa Barbara Harbor (M)	4,670	4,294	540 1/	124 1/	50 1/	N/C	
Santa Monica Breakwater (M)	7,510	7,110	400 1/	50 1/	350 1/	N/C	
			CONTINUING CONSTRUCTION PROJECTS				
1/ PED Funds - Design (M)	101,000	97,274	1,674	904	100	425	Continue Construction ✓
Los Angeles Harbor (M)	2,200	1,424	1,300	1,300	124	N/C	Complete Construction
Morro Bay Harbor (M)	89,235	67,089	35,000	16,023	14,000	N/C	Continue Construction
Oakland Harbor (M)	25,750	18,471	600	600	3,296	N/C	Continue Construction
Richmond Harbor (M)	24,900	17,163	500	0	100	500	Continue Construction ✓
Sacramento River Deep Water Ship Channel (M)	172,250	108,901	700	630	800	N/C	Continue Construction
San Francisco Bay to Stockton (John F. Baldwin & Stockton Ship Channels) (M)	6,375	2,000	8,000	6,734	500	N/C	Complete Construction
Sonoma Baylands Wetlands Demonstration Project (BE)	34,240	18,872	1,000	1,000	100	6,000	Continue Beach Replenishment ✓

NOTE:
 (M) NAVIGATION
 (S) SHORELINE
 (BE) BEACH EROSION

(Amounts in Thousands)
FY 1996

PROJECT	FY 1994 OBLIGATIONS	FY 1995 ESTIMATED OBLIGATIONS	FY 1996 PRESIDENT'S BUDGET	FY 1996 C-M:UC RECOMMENDATIONS (IF GREATER THAN BUDGET)	PURPOSE: BUDGET (OR ADDITIONAL) AMOUNT
Bodega Bay Harbor	8	0	0	M/C	No maintenance required
Chanel Islands Harbor	981	1,821	890	M/C	Jetty Repair
Crescent City Harbor	74	0	0	M/C	No maintenance required
Dana Point Harbor	0	0	0	M/C	No maintenance required
Fisherman's Wharf Area	0	0	0	M/C	No maintenance required
Humboldt Harbor and Bay	3,117	2,885	4,670	M/C	Dredging and jetty repair
Los Angeles - Long Beach Harbors	478	3,033	0	600	Setiment survey and comprehensive survey of San Pedro breakwater
Los Angeles - Long Beach Harbors Model	152	157	160	M/C	Continue model maintenance
Marina del Rey	455	5,311	0	1,700	Dredging and comprehensive study for disposal of dredge material
Monterey Harbor	35	0	0	M/C	No maintenance required
Morro Bay Harbor	2,192	764	2,580	3,270	Dredging and repair south breakwater
Moss Landing Harbor	0	0	845	M/C	Dredging and repair jetty
Napa River	387	20	0	M/C	No maintenance required
Newport Bay Harbor	0	40	0	1,750	Repair east and west jetties
Noyo River and Harbor	46	599	0	M/R	Repair jetty
Oakland Harbor	1,887	2,082	2,205	M/C	Dredging and bridge maintenance
Oceanside Harbor	1,339	790	1,045	M/C	Dredging
Oceanside Experimental Sand Bypass	600	4,878	0	M/E	Dredge river channel
Petaluma River	945	2,019	1,690	M/C	West Shoreline
Pillar Point Harbor	0	0	0	400	Engineering and design for future dredging
Port Huenehe	0	200	135	M/C	No maintenance required
Port San Luis	0	0	0	M/C	No maintenance required
Redondo Beach Harbor (King Harbor)	0	0	0	M/C	No maintenance required
Redwood City Harbor	20	0	2,600	M/C	No maintenance required
Richmond Harbor	1,951	2,140	6,481	3,000	Dredging
Sacramento River				M/C	Dredging
Sacramento River (30 ft.)	98	1,889	457	M/C	Bank stabilization
Sacramento River (Shallow Draft)	131	235	117	M/C	Maintain lock; bridge and structural maintenance
San Diego Harbor	131	123	1,085	M/C	Dredging and comprehensive survey of Zuniga Jetty
San Diego River & Mission Bay	286	0	0	M/C	No maintenance required
San Francisco Bay-Delta Model Structure	1,533	2,309	2,000	M/C	Annual maintenance and operation of visitor center
San Francisco Bay Long Term Management Strategy	1,508	504	150	350	Complete development of the LTRMS
San Francisco Harbor	1,728	1,784	1,825	M/C	Bar Dredging
SF Bar Channel (55 ft.)				M/C	Dredging and Bank Stabilization
San Joaquin River	1,269	1,685	1,039		

(Amounts in Thousands)
FY 1996

PROJECT	FY 1994 OBLIGATIONS	FY 1995 ESTIMATED OBLIGATIONS	FY 1996 PRESIDENT'S BUDGET	FY 1996 C-MARC RECOMMENDATIONS (IF GREATER THAN BUDGET)	PURPOSE: BUDGET (OR ADDITIONAL) AMOUNT
San Leandro Marina (Jack D. Maltester Channel)	94	0	0	M/C	No maintenance required
San Pablo Bay and Mare Island Strait	983	2,308	1,080	M/C	Dredging
San Rafael Creek	0	0	0	4,000	Dredging ✓
Santa Barbara Harbor	1,306	1,934	1,038	1,600	Dredging ✓
Santa Cruz Harbor	50	0	0	200	Proposed cost sharing agreement change ✓
Suisun Bay Channel	1,276	782	665	1,000	Dredging
Suisun Channel	0	0	0	M/C	No maintenance required
Ventura Harbor	998	355	2,288	M/C	Dredging
Drift Removal (S.F. Harbor and Bay)	2,004	2,199	2,195	M/C	Drift removal and maintenance of debris boats

PREPARED STATEMENT OF JAMES CROOK, MANAGER, KAWEAH DELTA
WATER CONSERVATION DISTRICT

Mr. Chairman and Members of the Subcommittee:

My name is James Crook, and I am the Manager of the Kaweah Delta Water Conservation District in the eastern San Joaquin Valley of California. Thank you for the opportunity to present testimony regarding the Fiscal 1996 budget for the U. S. Bureau of Reclamation.

This testimony is submitted in support of the request of the U. S. Bureau of Reclamation for funding related to the Kaweah River Corridor Project in the amount of \$200,000. The purpose of this funding is to support annual operation and maintenance costs of the project associated with the attributes specifically related to environmental enhancement.

The Kaweah River Corridor project is located within Tulare County. The project area lies on the east side of the central San Joaquin Valley, just downstream of Terminus Dam. It is located between the St. Johns River on the north and the Kaweah River and its tributaries on the south and extends on the west to the City of Visalia.

This is a continuing project. The Bureau of Reclamation, with the California Water Commission's endorsement, has already provided \$1,000,000 to support the project. The State of California has pledged a contribution of approximately \$565,000 to pay for land acquisition and revegetation of the project site.

The purpose of the project is to develop, in a single combined project, a long-term solution for groundwater recharge, storm water control and native habitat conservation and restoration along the Kaweah River Delta corridor. Of particular importance is the restoration of Valley Oak riparian forests which are unique in the San Joaquin Valley and a critical important wildlife habitat.

Phase I of the project, a site feasibility study funded by state and local agencies, has been completed. It has identified potential sites for habitat restoration, recharge and flood control improvements.

Phase II, which has just begun, includes engineering, design and implementation of a demonstration program at one of the sites. This part of the project is being funded by the state and the U. S. Bureau of Reclamation. The District has assumed the local sponsorship role related to the project and is proceeding with the completion of the tasks associated with Phase II.

The project is supported by the County of Tulare and the City of Visalia. In addition, fourteen separate state and local agencies have endorsed and/or provided funding for the project.

In order to ensure the long-term success of the project, however, there is a need for an additional commitment from the Bureau of Reclamation of \$200,000 to be funded out of the construction account. These funds will be used to support the on-going costs of the project attributable specifically to environmental enhancement. All other normal operation and maintenance costs will be paid for by the non-Federal project sponsors. The funds made available to the Bureau of Reclamation should be transferred to the National Fish and Wildlife Foundation for this purpose..

Your approval of this appropriation is requested and the District's continued support is offered.

Thank You

Mr. Chairman and Members of the Subcommittee:

My name is James Crook, and I am the Manager of the Kaweah Delta Water Conservation District in the eastern San Joaquin Valley of California. Thank you for the opportunity to present

the District's views regarding the Fiscal 1996 budget for the U.S. Army Corps of Engineers.

The Conservation District respectfully requests that Congress provide \$300,000 in the Corps' FY 1996 budget for preconstruction engineering and design of a project to increase the water storage and flood control capacities of Terminus Reservoir at Lake Kaweah, California.

The request is supported by the California Water Commission and by members of the California Congressional Delegation.

The Conservation District was formed in 1927 to conserve and protect the surface and groundwater of the Kaweah delta. The District serves 337,000 acres, which include the cities of Visalia and Tulare and several unincorporated areas in Kings and Tulare counties. Those two counties consistently rank among the most productive agriculture counties in the nation.

Terminus Reservoir, located on the Kaweah River three and one-half miles east of the District, was completed in 1962 by the U.S. Army Corps of Engineers. The purpose of the project is to provide flood protection on the Kaweah River and river control for irrigation purposes. The Conservation District manages the irrigation and flood control releases for the reservoir, as well as conjunctive use of the surface and groundwater of the Kaweah.

Rapid growth in the region has created a need for better flood protection and more water storage. In 1988, the Corps began a feasibility study for a project to enlarge Terminus Reservoir. The project would add approximately 43,000 acre-feet of flood control and conservation storage space to Lake Kaweah. The feasibility study, which now has an estimated cost of \$3

million, is nearly complete and has determined that the enlargement project has a positive benefit-to-cost ratio.

Despite the merits of the project, the Corps has not included funding for the next phase, preconstruction engineering and design, in its FY 1996 budget request. Apparently this is because of the Corps' new policy of not pursuing single-state flood control projects.

We believe that policy is very short-sighted and breaks faith with the state and local authorities that have invested a decade of effort and a large amount of scarce local funds in working with the Corps to enlarge Terminus Reservoir.

To date, local authorities, including Kings and Tulare counties, the City of Visalia and the Kaweah Delta Water Conservation District, have contributed more than \$1.4 million to the cost of the feasibility study. The original cost-sharing agreement signed by the Corps in 1988 was for a local contribution of only \$800,000. The Corps has increased the total cost of the feasibility study three times since 1988, nearly doubling the original estimate of \$1.6 million.

The Conservation District and other local authorities reluctantly agreed to share the cost increases because the Corps said that was the only way to continue the project, which the Corps now suddenly wants to terminate.

California's growing population will place ever increasing demands on its water supply. Improving existing facilities such as Terminus Reservoir is one of the most economical and environmentally sensitive ways to meet those new demands. It is important for Congress to encourage such projects, and we respectfully request that you provide the funding necessary to continue work to enlarge Terminus Reservoir at Lake Kaweah.

Thank you.

PREPARED STATEMENT OF PLINY MC COVEY, SR., VICE CHAIRMAN, HOOPA VALLEY TRIBE OF CALIFORNIA

Mr. Chairman. The Hoopa Valley Tribe (HVT) of California is self-governing as defined by P.L. 103-413: as such, the HVT is working with Interior Agencies to identify functions suitable for compacting under the Law.

SUMMARY OF BUDGET REQUEST

1. *Maintain the FY 1996 Reclamation Trinity Operation and Maintenance (O&M) budget at the FY 1995 level. (\$5.054 million)*
2. *Maintain the Construction Program budget for the Trinity River Fish and Wildlife Management (Program) at the FY 1996 proposed level (\$5.067 million) and provide that the interagency Cooperative for Comprehensive Fisheries Management Agreement between the HVT and Reclamation be funded at \$500,000.*
3. *Completion of the Trinity River (Environment Impact Statement) (EIS) is essential to the long-term restoration of the Trinity River. The HVT adamantly urges Congress to direct appropriate Interior Agencies (BOR, USFWS) to provide funding and staffing necessary to complete the NEPA Document.*

BACKGROUND OF THE TRINITY/KLAMATH RIVER FISHERIES ISSUES

The Hoopa Valley Tribe is a federally-recognized Indian Tribe occupying the Hoopa Valley Indian Reservation located on the lower Trinity and Klamath Rivers in Northwestern California. Since time immemorial, the fishery resources of the Klamath-Trinity Basin have been integral to the HVT's culture, history, and economy. The HVT owns a reserved right in the fishery which is held in trust by the United States. The legal and trust status of the reserved right is set forth in an opinion of the Solicitor (M-36979, Fishing Rights of the Yurok and Hoopa Valley Tribes, (October 4, 1993)) and cases cited therein, and has been confirmed by Congress in the Hoopa Yurok Settlement Act (25 U.S.C. 1300i) and the Central Valley Project Improvement Act (P.L. 102-575, 106 Stat. 4600, 4714, S. 3406(b)(23)). Indeed the Tribe's dependence on the river and the fishery is as profound and significant today as it has always been.

In 1955, Congress authorized construction of the Trinity River Division of the Central Valley Project. With the Trinity River authorizing legislation, the Federal Government was obligated to maintain fishery populations of the Trinity River. Further, this legislation was consistent with the already established Federal trust obligations on behalf of the HVT's fishery and water resources.

In 1963, the Reclamation completed construction of the Trinity Division and began diverting about 90 per cent of the River's downstream flows to the Central Valley Project. Immediately after the water diversions began, the fishery populations in the Klamath and Trinity Rivers began to decline. Over the next decade, fisheries experts estimated that the fishery populations experienced a reduction of nearly 90 per cent of the pre-dam populations levels. In response to the dramatic declines in anadromous fish populations, Congress enacted the Trinity River Fish and Wildlife Restoration Program (P.L. 98-541), in 1984. This law was intended to restore fisheries to pre-project levels of abundance. Leading up to this Congressional action, the Secretary of the Interior issued a Secretarial Issue Document (SID), 1981, which increased stream flows from 120,000 acre feet (af) to 340,000 af, and further directed the development of a twelve-year flow evaluation study to identify flows for complete restoration of the fishery.

The scope of the Trinity River Restoration Act was limited to within the Trinity River Basin only. Accordingly, the Act did not include a method for controlling harvest, which impacted the spawning escapement of Klamath and Trinity Salmon stocks. By the early 1980's, the decades of water diversion and corresponding reductions in habitat, coupled with harvest

impacts, took a tremendous toll on the fishery resource. Whereas the Trinity Restoration Program had no authority to affect harvest management, coordinated efforts by Tribal, Federal, and State Governments led to the formation of the Klamath River Salmon Management Group. This group, later to become the Klamath Fishery Management Council, (as provided under Klamath River Restoration Act, P.L. 99-552) provided harvest recommendations to the Pacific Fishery Management (PFMC) which were comprehensive with respect to adjusting harvest impacts on Klamath-Trinity Salmon to allow minimum spawner escapement levels necessary to sustain the fish population.

Unfortunately, salmon and steelhead runs in the Klamath currently remain at all-time lows. The fisheries supported by these runs are of vast significance to the regional economies of Northern California and Southern Oregon, which are struggling to recover from impacts of declining timber harvest. Klamath fish populations are impacted by an array of Federal and State projects and processes including: diversions from the Trinity River by the Central Valley Project; diversions from the Klamath River by the Klamath Project; ocean salmon harvest allocations by the Commerce Department's PFMC; and land management by Federal and State agencies.

The HVT remains optimistic at the prospect of fishery restoration envisioned in the Program legislation. However, complete restoration of the Trinity Fishery will depend largely upon the stream flows allocated to the Trinity River. The Secretary of the Interior is required to render a flow decision in 1996. The results of the twelve-year flow evaluation, initiated by the 1981 SID, coupled with the Trinity River EIS should provide the background necessary for the Secretary's Record of Decision.

SUMMARY OF BUDGET REQUESTS

- 1. Maintain the FY 1996 Reclamation Trinity Operation and Maintenance (O&M) budget at the FY 1995 level.**

The FY 1996 President's budget provides for a reduction in the Operation and Maintenance for the Trinity River Division of over \$900,000. This budget reduction is based on the Administration's opinion that there will be a decrease in routine operation and maintenance of the Trinity River Hatchery. However, this budget reduction does not take into consideration any increases in other components of the operations and maintenance requirements due to damage resulting from this past winter. Additionally, funds should be made available to complete the EIS to support the instream flow decision in 1996. Therefore, the HVT recommends that the operations and maintenance budget be kept at the FY 1995 level of \$5,454,000.

- 2. Maintain the Construction Program budget for the Trinity River Fish and Wildlife Management program at the FY 1996 proposed level (\$5.067 million) and provide that the interagency Cooperative for Comprehensive Fisheries Management Agreement between the Hoopa Valley Tribe and Reclamation be funded at \$500,000.**

The Program is intended to restore the Trinity River system to pre-dam levels. In response to drastic declines in Klamath Basin fish populations, the HVT has developed its own fishery and water management capabilities to a very sophisticated level, and in the last five years has emerged as a leader in comprehensive basin-wide management of these important resources. In 1992, the HVT and Reclamation initiated a comprehensive Fisheries Co-Management Project (Project) to promote the systemic management of Klamath Basin fisheries and water resources. An interdisciplinary cooperative of technical staff from the Tribal Fisheries Department and Reclamation's Mid-Pacific Region has addressed management of tribal trust fishery and water resources. Decision-making in this collegial forum has already produced significant benefits: dramatically improved relations between the HVT Tribe and Reclamation; and, coordination of operations at the Klamath and Central Valley projects.

Team members have been able to integrate the methodologies, data, analyses and results of decisions taking place outside the federal water management arena, (e.g., PFMC and Klamath River Basin Task Force's technical work group. Moreover, water management activities at Reclamation's Klamath and Central Valley projects have become coordinated with Tribal, State and Federal fishery restoration efforts.

In the future, the Project is expected to aid in the recovery of salmon runs in the Klamath and Trinity rivers, while promoting timely and effective solutions to federal water management decisions. Integrated federal-tribal management such as afforded through this Project will be critical to avoiding costly roadblocks to federal resource management decisions, such as the Interior Secretary's upcoming decision on Trinity River streamflows.

The Project has thus far gained the support of the Reclamation and has been included in their FY 1996 budget. The project is complemented with an annual trust evaluation aimed at continual refinement of the working relationship between the HVT and Reclamation. The funding requested, provides resources necessary for the HVT to pursue its involvement in operations planning, environmental impacts analysis, hatchery investigations, and fisheries management. Although the HVT's relationship with Reclamation has improved significantly in recent years, it is clear that the fishery management problems associated with the CVP and Klamath Project operations are continuing, and can only be successfully resolved if the HVT and Reclamation are committed to ongoing co-management of these important resources.

CONCLUSION

I am requesting that the budget contained in the proposed FY1996 Bureau of Reclamation budget for the Program be maintained at \$5.067 million as proposed. Further, I am requesting that you specify a \$500,000 line item for the Hoopa Valley Tribe to preserve the mutually beneficial Comprehensive Fisheries Co-Management Project.

Again, I appreciate the opportunity to present our views on the FY 1996 proposed budget for the Bureau of Reclamation.

Thank You.

LETTER FROM JAMES M. DANZA, CHAIR, TECHNICAL ADVISORY BOARD, FRIENDS OF THE LOS ANGELES RIVER

February 27, 1995

Honorable Pete V. Domenici
Washington, DC 20510

Honorable Pete V. Domenici:

Friends of the Los Angeles River (FoLAR), is very concerned about LACDA, the estimated \$300-500 million Los Angeles County Drainage Area Project -- a U.S. Army Corps of Engineers flood control project in the Los Angeles area. Because this single-purpose project calls for 21 miles of flood walls through the Los Angeles area, many community groups and nearly every environmental group opposes the flood wall option. Although the need for additional flood protection is recognized by FoLAR, we and the others (see examples of letters attached) strongly feel that an alternative project would be better for Los Angeles.

The LACDA project proposes to increase river's capacity with concrete walls up to eight feet high and raise nearly a dozen bridges. Opposition to the project has grown with awareness of its potential impacts: 1) no water would be

conserved, 2) would further scar the urban landscape with 21-miles of graffiti walls, 3) similar in theory to the Mississippi, ie. build the river higher without any 'natural' controls (no consideration given to the Interagency Task Force, the Galloway Report), 4) no water pollution controls, does not meet NPDES requirements, 5) single purpose--no other benefits for each tax dollar spent. Organizations which have expressed concern over the flood wall alternative include:

- * City of Long Beach
- * City of Los Angeles
- * City of Santa Monica
- * National Park Service
- * State of California Senate Committee on Natural Resources and Wildlife
- * US Environmental Protection Agency

and groups which expressly oppose the wall alternative include:

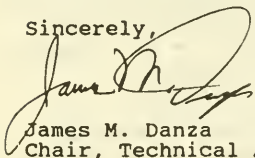
- * Audubon Society - Long Beach
- * American Rivers - national river organization
- * Citizens to Save Elysian Park
 - * East Long Beach Neighborhood Protection Organization
 - * Heal the Bay - ocean protection group in LA area
- * North East Trees - Reforestation group in LA
- * Sierra Club - Angeles Chapter and other chapters
- * National Surfrider - water quality concerns
- * Natural Resources Defense Council
- * Tree People - large tree planting organization
- * Wrigley Association-10,000+ homeowners in flood zone

A better alternative to the flood walls is a multi-objective project, which would not only provide 100-year flood protection, but would also conserve water, provide recreational benefits, restore habitat, and improve water quality (the LACDA project does none of these).

After a review of the Corps' studies, FoLAR has proposed two alternatives which are in the same or lesser price range and have multiple benefits for each tax dollar spent (please see attached report). The Corps and the local sponsor have agreed to a least review these alternatives. We would be glad to provide you a copy of our report upon your request.

Please review the attached letters and editorials which outlines some of the opposition to the flood walls. Currently, the Corps' official position is to move ahead with the wall project. We urge that funds be directed toward a better alternative project for Los Angeles which is not as controversial as the flood walls. Should the Corps propose a more appropriate project, we would urge you to support it.

Sincerely,



James M. Danza
Chair, Technical Advisory Board

LETTER FROM DAVID FARREL, ACTING CHIEF, OFFICE OF FEDERAL
ACTIVITIES, U.S. ENVIRONMENTAL PROTECTION AGENCY

February 9, 1995

Diego Cadena
Planning Division
Los Angeles County Dept. of Public Works
900 S. Fremont Ave., 11th Floor
Alhambra, CA 91803-1331

Dear Mr. Cadena,

I understand that the County Department of Public Works is currently reviewing the Los Angeles County Drainage Area (LACDA) Project Draft Master Environmental Impact Report (MEIR). This is a project which the U.S. Environmental Protection Agency (EPA) evaluated in 1991-1992 in the context of the U.S. Army Corps of Engineers Environmental Impact Statement on LACDA (letters from Deanna M. Wieman to Col. Charles Thomas, dated November 6, 1991, and to Donald A. Banashek, dated April 27, 1992). Then, as now, the proposed project focused on structural modifications to the lower Los Angeles River channel to address flood risk in that immediate area. The County's MEIR describes a preferred project design which relies on increasing capacity of the channel to contain and rapidly evacuate flows. Options which would help attenuate flood peaks and reduce the volume and energy of storm waters in the Los Angeles River, such as floodplain expansion and watershed management, are treated only briefly.

We recognize the importance of providing adequate flood control within the Los Angeles Basin. However, this can be more effective over the long term and can provide more benefits to the public if it is pursued in the context of river and watershed management. This perspective is vividly endorsed in the "Galloway Report," which assessed causes and consequences of 1993 Midwest flooding and recommended nationwide improvements in floodplain management ("Sharing the Challenge: Floodplain Management into the 21st Century," Report of the Interagency Floodplain Management Review Committee, Gerald E. Galloway, Executive Director, June 1994). We are concerned that the structural controls promoted by the County MEIR do nothing to rectify conditions which contribute to river channel flooding, such as loss of vegetative cover and increase in impervious surfaces with urbanization. Nor does the proposed project consider the environmental and recreational values of the river system.

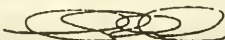
We encourage you to examine alternatives to flood water management which better address causes of flooding and provide other benefits, such as expanded recreation and open space, and improved water supply and quality. Rather than concentrate solely on the flood capacity of the channel, we suggest that you treat the river as a potential environmental, recreation and community resource and build a plan which integrates flood control with these other values. A number of promising multi-purpose options are discussed briefly in the MEIR -- for example, expanded use of retention/detention basins, floodplain restoration, expanded groundwater recharge and sediment management, and watershed management. No single approach will remedy flood problems. We suggest that you pursue an expanded "composite" alternative, remaining open to options which are not currently listed in the MEIR.

We also recommend that the project be more explicitly related to storm water management carried out through National Pollutant Discharge Elimination System (NPDES) permitting. EPA's NPDES storm water regulations require a program "to assure that

flood management projects assess the impacts on water quality of receiving water bodies and that existing structural flood control devices have been evaluated to determine if retrofitting the device to provide additional pollutant removal from storm water is feasible" (40 CFR 122.26 (d)(2)(iv)(A)(4). At the local level, this will require coordination of your project with the Los Angeles County NPDES Storm Water Program.

The County has a significant opportunity to adopt a comprehensive project with lasting, multi-purpose benefits to the public. As you are no doubt aware, effective design and implementation of such a program will require collaboration across programs and agencies. We at EPA would be very interested in discussing ways in which our agency can contribute to this effort. We would also be glad to assist you in obtaining a copy of the Galloway Report. If you would like to arrange a meeting or conference call, please call me at 415-744-1584, or contact Paul Michel of the Southern California, Arizona, and Nevada Watersheds Section 415-744-1799.

Yours truly,



David Farrel, Acting Chief
Office of Federal Activities

LETTER FROM TOM HAYDEN, CHAIRMAN, SENATE COMMITTEE ON NATURAL
RESOURCES AND WILDLIFE, SACRAMENTO, CA

January 27, 1995

Harry Stone, Acting Director
Los Angeles County Public Works
900 S. Fremont Avenue
Alhambra, CA 91803

Dear Mr. Stone:

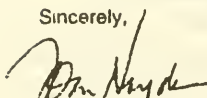
We are concerned at reports that Los Angeles County officials have indicated that state funds will be available for the proposed raising of the cement walls of the Los Angeles River

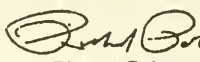
The County and the US Army Corps of Engineers are on the verge of launching this flood control project at a cost which has ranged between \$300-\$500 million. We are advised that county officials have stated that 70 percent of the County's matching funds for this project might come from state subventions.

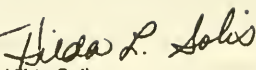
We have questions about the wisdom and effectiveness of yet more concrete channeling of the Los Angeles River. We support further analysis of the attractive alternatives put forward by groups like the Friends of the Los Angeles River. But we especially wish to dispel any expectation that tens of millions in state dollars will be available for this proposed project.

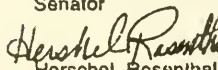
We look forward to dialogue on these matters.

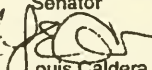
Sincerely,


Tom Hayden
Senator


Richard Polanco
Senator


Hilda Soils
Senator


Herschel Resenthal
Senator


Louis Caldera
Assemblyman


Martha Escutia
Assemblywoman

EDITORIAL FROM PRESS-TELEGRAM, LONG BEACH, CA

Controlling floods and FEMA

The timing was either perfect or awful, depending on how you look at it. Friends of the Los Angeles River picked the week of a great deluge to release a report opposing a proposed expansion of the flood-control system.

The project at issue is the Army Corps of Engineers' plan to spend \$300 million or more to make the Los Angeles River channel capable of handling the storm of the century. Coincidentally, the storms during the last week have been described by at least one weather expert as a "500-year event."

Now if the Army Corps expects the Los Angeles River to overflow its banks and levees in a 100-year storm, it seems like it ought to have filled up in a 500-year event, and it didn't. Be that as it may, we've had plenty of flooding without any added grief from the river, and the floods didn't do a lot for the Army Corps' case.

At the same time, if members of the Friends of the Los Angeles River wanted people to be complaisant about flooding, their timing was awful.

Actually, the Friends agree with the Army Corps about the need to improve flood protection. They just want to go about it differently.

They would drop the idea of topping the levees with walls 2 to 8 feet tall, which residents of the area denounce as a 21-mile graffiti canvas. Instead, the Friends would increase the capacity of upstream dams, divert some water into gravel pits, store water in new or existing spreading grounds, and widen the river at its lower end as it approaches the ocean. This, they maintain, would cost no more, and probably less, than

the concrete-pouring approach and would restore parts of the river to a more natural state. That's an appealing concept, and worth a hard look.

The Army Corps and Los Angeles County Public Works Department already have looked at some of the Friends' proposals and dismissed them as either too expensive or ineffective. But Stuart H. Brehm III, lead Corps engineer for the channel project, said the combination of suggestions is new, and if after closer scrutiny it offers advantages, the Corps engineers would love to build it.

The less concrete the better, as far as most of us are concerned. But there is a broader question, apart from whether the river gets more concrete or more room to meander. The Federal Emergency Management Agency wants to designate parts of 10 cities from Pico Rivera to Long Beach as a special flood hazard zone, which would mean homeowners would end up paying millions of dollars in higher flood insurance premiums and the region would be afflicted with building restrictions that would suck hundreds of millions of dollars out of the local economy.

There is nothing about the recent floods, the Army Corps plans or FEMA's illogic to support that disastrous course. Flood-control improvements have merit, especially if the concrete can be minimized. But FEMA also has to be brought under control.

Public meetings on the L.A. County Drainage Area Project will be held Wednesday at 7 p.m., Long Beach City Hall, and Thursday at 7 p.m., Downey City Hall.

EDITORIAL FROM LOS ANGELES TIMES

A River Doesn't Run Through It

Normally dry L.A. River is flooded with policy questions

The Los Angeles River might usefully be regarded as a Rorschach test of sorts for the future direction of this region. The questions it poses to those who visit its graffiti-splattered shores and peer into its murky, trash-strewn waters are: Which past will be prologue here? Does the relentless concreting of open spaces push us toward more of the same? Or can natural resources be reclaimed and enhanced for a variety of public uses?

In the months to come, there will be a vigorous debate on this matter. The narrow issue is how best to protect downstream neighborhoods and cities from flooding. The challenge for public agencies and community groups is to find a way to better control the river while at the same time restoring it as a watershed and recreational resource.

Six decades after the U.S. Army Corps of Engineers began to channelize the river, there is little middle ground; the stark choice is more concrete or less.

Before the concrete was laid, the Los Angeles River, like most, was unpredictable. It often flooded in winter, dried up in summer and occasionally changed its course. Now the river is 58 miles of man-made dams, reservoirs and storm drains originating north of the San Fernando Valley and emptying into the sea at Long Beach.

Ironically, channelization has made the river more dangerous in some ways. Although there is barely a trickle much of the year, more than six people, on average, drown in the river every winter. It is then that storm waters—which before the 1930s percolated into the ground to replenish natural watersheds—race to sea at up to 60 m.p.h.

With continued urban development, some say, the threat of river flooding has increased. The Federal Emergency

Management Agency fears that an extreme rain would push river waters over existing levees, flooding downstream cities. Although critics have questioned FEMA's risk analysis, the U.S. Army Corps of Engineers and the L.A. County Department of Public Works are determined to raise the levees, elevating walls four to eight feet on the lower Los Angeles and the Rio Hondo, a main tributary south of

Downtown. Construction could start in the spring, and public dollars may be forthcoming for the levee work sooner than for worthy infrastructure projects such as the Alameda Corridor, which will speed cargo back and forth between local ports and inland rail links.

So concrete inexorably begets more concrete? Some say no. Community groups, including Friends of the

Los Angeles River and some farsighted local officials, are discussing a different future, one which addresses the threat of flooding while incorporating the river into the recreational life of the city. Urban rivers elsewhere, even some as channelized and waterless as the Los Angeles River is most of the time, often both serve as a tool of flood control and draw people who want to stroll, bike or just sit.

Significantly, among the places this could happen are the gritty, park-poor neighborhoods that line long stretches of the Los Angeles River. Levees, set back from the river banks on reclaimed parkland, could provide flood protection as well as space to play and relax. But time is growing short. Absent grass-roots consensus on an alternative, Los Angeles County and the Corps of Engineers could be mixing the concrete within months. Serious dialogue is beginning between agency officials and residents in riverside communities; it must continue.



ENERGY RESEARCH PROGRAMS

PREPARED STATEMENT OF ROBERT L. MC CRORY, PROFESSOR AND
DIRECTOR, UNIVERSITY OF ROCHESTERSummary and Requested Action

The Department of Energy's (DOE) Defense Programs' Strategic Plan relies on maintaining the technology infrastructure and core competencies to insure that the U. S. nuclear deterrent is credible while contributing to the U. S. research base. The National Inertial Confinement Fusion (ICF) program plays a central role in the stockpile stewardship technology program with the threefold laboratory mission: (1) To demonstrate the ignition of small masses of thermonuclear fuel, (2) To provide access to physics regimes of interest in nuclear weapon design and to provide nuclear-weapons-related physics data, and (3) To provide an above-ground simulation capability for nuclear weapons studies and effects. With cessation of underground nuclear tests and contraction of the nuclear weapons research and development effort, ICF is a vital component of the DOE's technology-based stockpile stewardship program. A potential long-term spin-off benefit from the program is that ICF could provide a source of environmentally acceptable and economically competitive civilian power.

The University of Rochester's Laboratory for Laser Energetics (LLE), a participant in ICF research since the 1970s, is the only ICF program that has been jointly supported by the Federal government, State government, industry, utilities, and a university. At relatively small comparative cost to the government, LLE makes contributions to the National program and transfers technology to the public and private sectors through the training of graduate students and interactions with industry and other Federal laboratories. The facility serves as a National laser users' facility benefiting scientists throughout the country.

The Laboratory's prime mission is to validate the direct-drive option for ICF. There is a close collaboration among LLE, Lawrence Livermore National Laboratory (LLNL), and Los Alamos National Laboratory (LANL) to support the demonstration of ignition and gain in the laboratory, the objective set by the National Academy of Sciences' (NAS) review of the National program in 1990.

Reviews of the Rochester program by the NAS and the Inertial Confinement Fusion Advisory Committee (ICFAC) recommended the OMEGA Upgrade and the potential of direct drive as high priorities in the National program. This year, the OMEGA Upgrade, designated a major project by DOE, will be completed and be placed into operation after a four-and-one-half-year construction period. The OMEGA Upgrade will be the only facility that can demonstrate the scientific potential of direct drive to provide a modest- to high-gain energy option for the Nation. The Upgrade is being completed on schedule and within the \$61,000,000 total estimated cost (TEC) schedule approved by DOE. The DOE-approved funding profile in the Cooperative Agreement for the LLE program, for operation of the new facility is shown in the table below.

	FY93	FY94	FY95	FY96	FY97
Operations	\$15,590,000	\$16,498,180	\$17,165,770	\$18,191,770	\$19,150,770
Capital	\$23,410,000	\$8,700,000	\$3,600,000	\$1,900,000	\$2,000,000
Total	\$39,000,000	\$25,198,180	\$20,765,770	\$20,091,770	\$21,150,770

To provide the operations support for program deliverables and operation of the OMEGA Upgrade, and maintain the training programs at Rochester, a total authorization and appropriation, as included in the Administration's budget for FY96, of \$20,091,770 (\$18,191,770 for operations, and \$1,900,000 for capital equipment) is requested for the University of Rochester for FY96.

Background

Thermonuclear fusion is the process by which nuclei of low atomic weights, such as hydrogen, combine to form higher atomic weight nuclei such as helium. In this process some of the mass of the original nuclei is lost and transformed to energy in the form of high-energy particles. Energy from fusion reactions is the most basic form of energy in the universe; our sun and all other stars produce energy by thermonuclear fusion reactions occurring in their interior. Fusion is also the process that provides the vast destructive power of thermonuclear weapons.

To initiate fusion reactions, the fuel must be heated to tens of millions of degrees. In stellar bodies, containment is possible because of the large gravitational force. On earth, two different paths are being investigated to demonstrate controlled fusion: magnetic confinement fusion and ICF. ICF involves the heating and compression of fusion fuel by the action of intense laser or particle beam drivers. There are two approaches to ICF, direct and indirect drive: indirect drive involves the conversion of beam energy to x rays to compress a fuel capsule in an enclosure called a hohlraum; direct drive involves the direct irradiation of a spherical fuel capsule by energy from a laser and may be more efficient energetically than indirect drive. For either approach, if very extreme density and temperature conditions are produced, it is possible to produce many times more energy in these fusion reactions than the energy provided by the drivers.

Inertial Confinement Fusion Program Focus

The 1990 NAS review of the ICF program¹ identified the program priorities that were subsequently endorsed and are being pursued by the DOE. The NAS report states "*The expeditious demonstration of ignition and gain should be the highest priority of the inertial confinement fusion (ICF) program. Adequate funding toward this goal must be assured.*"

To implement this recommendation, the NAS report identifies the glass laser program as the best path for demonstrating ignition (initiation of a thermonuclear reaction that can be self-sustaining) and propagating thermonuclear burn. The three high-priority tasks identified by the NAS to accomplish the program goals are: (1) To conduct precision indirect-drive experiments on the NOVA laser at LLNL, (2) To validate the laser architecture required for a National Ignition Facility (NIF) using the beamlet at LLNL, and (3) To construct the OMEGA Upgrade at the University of Rochester's LLE for precision direct-drive experiments.

DOE accepted the NAS recommendations, and substantial progress has been made on all three tasks. Encouraging results from indirectly driven targets from the NOVA facility at LLNL have been obtained. Based on these data ICFAC recommended, and DOE approved, proceeding with the conceptual design phase (DOE's Key Decision 1 or KD1) for a major facility, the National Ignition Facility (NIF). The purpose of the NIF is to demonstrate ignition, propagating burn, and modest gain in the laboratory. The NIF could begin activation in the year 2000, with KD4 (Project Complete) scheduled for the end of FY02.

LLE is the primary focus in the U. S. for the direct-drive approach to ICF. The NAS report states that direct drive may ultimately prove to be the best approach to ICF and provide the most efficient path to a laboratory-scale thermonuclear capability for both energy research and defense technology needs. OMEGA is the only facility that can demonstrate the scientific potential of direct drive to provide modest- to high-gain on the NIF. The decision on whether to implement a direct-drive capability on the NIF will be based on experiments using the OMEGA Upgrade through FY99.

For several years an extensive collaborative program between LLNL, LANL, and LLE has provided data on basic physics, beam smoothing, and unstable hydrodynamics using available laser facilities, such as NOVA. This collaboration will continue on the OMEGA Upgrade. The joint effort includes both nuclear weapons physics experiments and ICF experiments. This effort is a key element in the stockpile stewardship technology program. Physics issues for both ICF and weapons issues for the stockpile stewardship program that will be examined with the OMEGA facility fall into five broad categories: irradiation uniformity, laser energy coupling and transport, laser-plasma interaction physics, hydrodynamic stability, and hot-spot and main-fuel-layer physics. The OMEGA Upgrade and NIF programs are complementary. Figure 1 illustrates the schedule for the glass laser facilities to be used in the National program plan for inertial fusion.

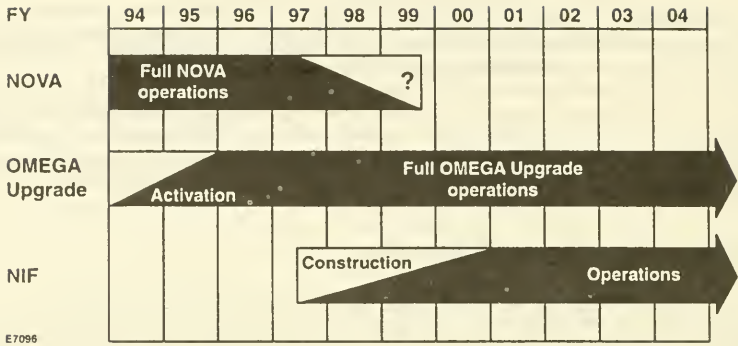


Fig. 1 Anticipated schedule for the operation of NOVA, the OMEGA Upgrade, and the NIF.

The figure illustrates how the National program has been structured to provide a full complement of mature experimental facilities from the present into the next millennium. If the NIF adheres to DOE's present schedule, construction of NIF will result in the eventual shut down of the NOVA laser, with **OMEGA as the principal facility to continue experimental work** during the final phases of NIF construction. Although the LLE program is focused on direct drive, OMEGA is capable of indirect drive (hohlraum) experiments as well. Both LANL and LLNL presently plan to use the indirect drive capabilities of OMEGA in the future.

The LLE Program for FY96

The OMEGA Upgrade system will deliver 30,000 Joules of temporally shaped, ultraviolet (351 nm) light to direct-drive targets. This will be the highest energy ever delivered directly to a fusion capsule in a laser-fusion experiment. By comparison, for example, the NOVA capsules are driven with up to 3,000 Joules of energy (*1/10th as much as direct drive with the OMEGA facility*). The larger energy will yield critical data for ignition-size capsules. At least 1,000 high-quality target shots per year are scheduled on the OMEGA Upgrade when operated on a single-shift basis. Both LANL and LLNL will collaborate with LLE on many of these experiments. Some of the shots will be devoted to weapons physics issues identified by LANL during FY95.

The goal of the glass laser direct-drive target physics program is to evaluate the performance of capsules near ignition conditions. In addition to providing data for the NIF, experiments can validate a direct-drive option for NIF that could result in two to three times higher fusion gains (gain > 50) than those available with the baseline (indirect-drive) NIF design. The diagnostic instruments for key experiments to be conducted in FY96 are currently being installed on the OMEGA target chamber.

An important element of the direct-drive program on the OMEGA Upgrade is to demonstrate beam smoothing techniques that ultimately will produce on-target irradiation uniformity of 1% to 2%. The first phase of the LLE-developed smoothing by spectral dispersion (SSD) approach will be implemented on the OMEGA Upgrade in late FY95 in preparation for precision direct-drive experiments to be conducted in FY96. This LLE technique has been implemented on NOVA, and variants of the approach are being incorporated in the NIF design to meet the irradiation uniformity requirements of both direct- and indirect- drive targets.

The development of cryogenic fueling is necessary for the post-NOVA-technical-contract ignition optimization experiments as well as for the hydrodynamically equivalent target experiments to be conducted on the OMEGA Upgrade. In collaboration with LLNL and General Atomics, a prototype cryogenic capability to be completed in FY98 is being developed for the OMEGA Upgrade. Cryogenic capability, advanced diagnostics development, and beam smoothing are all required for the NIF. The OMEGA Upgrade will be the principal National facility to develop these technologies for the program.

LLE attaches a high priority to providing education and training in the field of ICF and related areas. These include theoretical and experimental plasma physics, laser-matter interaction physics, high-energy-density physics, x-ray and atomic physics, ultrafast optoelectronics, high-power laser development and applications, nonlinear optics, optical materials, and optical fabrication technology. A total of 60 graduate students and 22 faculty members of the University of Rochester are currently involved in the unique research environment provided at LLE and represent many departments within the University, including Mechanical Engineering, the Institute of Optics, Physics and Astronomy, Electrical Engineering, and Chemical Engineering. More than 45 undergraduate students receive research experience annually at LLE. A high-school summer science program exposes ten talented students each year to the research environment and encourages them to consider careers in science and engineering. Many LLE graduates have made important scientific contributions in National laboratories, universities, and industrial research centers.

References

- 1 Review of the Department of Energy's Inertial Confinement Fusion Program Final Report (National Academy Press, Washington DC, 1990).

PREPARED STATEMENT OF NED SAUTHOFF, CHAIRMAN, ENERGY POLICY COMMITTEE, INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

FUSION ENERGY

Mr. Chairman and members of the Committee, my name is Ned Sauthoff. I am Chairman of the Energy Policy Committee of the Institute of Electrical and Electronics Engineers - United States Activities. I am also Head of Plasma Science and Technology at the Princeton Plasma Physics Laboratory and Physics Manager on the U.S. ITER Home Team. Next to me is Marvin McKoy, the Committee's Vice-Chair who is a representative of Georgia Power's Olympic Project Management team. Today, I speak to you as a representative of the IEEE-USA.

The IEEE is a transnational professional society whose 320,000 members live and work in more than 130 countries throughout the world. IEEE's United States Activities Board promotes the technology policy and professional career interests of IEEE's 240,000 U.S. members.

Reliable and affordable electrical power is essential for the United States to sustain and increase its productivity and economic competitiveness and to support a high quality of life for its population. Prudent government support of energy research will provide a basis for the U.S. electrical power industry, which is a major segment of the U.S. economy, to regain its position as a major worldwide supplier of electrical power technology.

Electricity is a particularly flexible energy form for transmitting power. The dominant primary sources in today's U.S. electrical power system are fossil fuels, nuclear fission and hydropower. Our overall energy goals should address all these sources and foster the development and deployment of energy production and conversion technologies that will increase the efficiency of U.S. energy utilization, improve environmental quality and support U.S. competitiveness. Environmental impacts and decreasing reserves of fossil fuels force us to address the need for alternative energy options. Production technologies worthy of exploration include advanced fossil fuel systems, solar and renewable energy systems, nuclear fission systems and thermonuclear fusion systems --- the main topic of my remarks today.

I know that Chairman Myers and many others are very interested in the U.S. Fusion Program. IEEE-USA firmly supports fusion research and development and believes fusion should be developed as a significant element within a portfolio of long term electrical energy generation technologies because of fusion's potential as an inexhaustible and environmentally attractive energy source. A stable government commitment to the long term development of fusion power

is essential to exploit domestic and international fusion advances and to remain among the leaders in strategically important areas.

Recognizing that all government spending is rightly undergoing intense scrutiny, it is up to every government-funded program to justify its continued existence. In the fusion program, significant milestones have been reached recently and these attest to the promise and continued viability of the program.

Highlights in U.S. magnetic fusion energy program include:

- the production of more than 10 million watts of fusion power in the U.S.'s Tokamak Fusion Test Reactor (TFTR);
- achievement of promising regimes of improved plasma confinement and stability in base program tokamaks;
- completion of the conceptual design of the U.S.'s Tokamak Physics Experiment (TPX), which is targeted at tokamak concept improvement; and
- significant progress in the continuing engineering design of the International Thermonuclear Experimental Reactor (ITER), in which the U.S. is a partner with the governments of Japan, Russia and the European Union.

Highlights in the U.S. inertial fusion energy program include:

- demonstration that a driver energy of 5 to 10 MJ is adequate to achieve fusion yield many times larger than the required driver energy;
- declassification of significant parts of the Inertial Confinement Fusion (ICF) program, which will lead to increased openness, participation by universities and industry, and increased communication with the international ICF program participants; and
- DOE approval of the mission need and the authorization for design for the inertial confinement fusion National Ignition Facility (NIF), which is targeted at ignition and energy gain in the laboratory.

These advances in the U.S. fusion energy program are impressive, but the U.S. fusion program must support a balance of the domestic and the international programs to remain among the leaders and to fulfill its role as an international partner.

The fusion program should include an appropriate balance of ignited plasma studies such as in TFTR and ITER, fusion technology programs, tokamak concept improvement as in the current base program and the planned TPX, inertial fusion energy such as in the National Ignition Facility, alternate concepts and basic plasma studies. U.S. industry should be involved whenever appropriate so that it will have the skills necessary to compete in the international market for providing fusion reactors in the future. Only with your continued leadership and support can the U.S. achieve its fusion energy potential and yield a return far greater than its investment.

As we consider the future of fusion energy, we must be mindful of the following: fusion research should be aimed at timely demonstration of fusion as an attractive power source for base load electrical power generation so that fusion will be available as an option in a balanced and diversified portfolio of future energy technologies.

We thank you for your past support, we recommend that you continue your visionary leadership in the future, and we in IEEE-USA stand ready to provide technical information to assist you in your role.

Thank you.

PREPARED STATEMENT OF THE ASSOCIATED GAS DISTRIBUTORS

Associated Gas Distributors (AGD) is a trade association of 44 local natural gas distribution utilities that provide gas service to tens of millions of consumers across the country. AGD and its members have long supported the Low Income Home Energy Assistance Program (LIHEAP) and respectfully urge the continuation of it.

AGD recognizes that federal government funding of numerous programs is being very carefully reviewed by Congress and the Administration. Just as many businesses in the private sector are "re-engineering" and rethinking established operating and management systems to obtain further efficiencies and become more competitive, so too is the federal government "reinventing" itself and trying to "do more with less."

LIHEAP is a well-regarded and established social assistance program that helps those with less do more. It has led by example and facilitated the growth of many and substantial complementary private sector energy assistance programs. For example, natural gas utilities have well-established programs to assist customers in meeting their energy needs. These programs often include fuel assistance funds supported by private contributions and utility shareholders. Fuel funds have grown in large part from the federal LIHEAP example, and, although they are now an important contributor to the mix of assistance provided to low income consumers, they remain small in relation to the federal LIHEAP contribution and would not be able to make up for significant reductions in LIHEAP funding.

It is also an inadequate response to the energy assistance needs of low income people to say that social welfare costs of the magnitude of LIHEAP can be borne by utilities or their other ratepayers. State utility rate regulation restrains utility returns, and service regulation simultaneously requires utilities to serve customers in the public

interest. Moreover, the competitive environment for energy services has become particularly intense in recent years. While utilities may be required to serve customers, the simple fact is that customers are not required to purchase utility services. Thus, if and when social welfare costs embedded in utility rates increase to offset LIHEAP funding reductions, utility customers will be driven to competitive energy suppliers that are not burdened with such costs.

LIHEAP has been a model of effectiveness in block grant programs and has provided assistance in a direct, tangible, and targeted way which routinely helps those who need help most when they need it most. It is, in short, a good federal program that is necessary for public welfare and because private relief efforts cannot meet those welfare needs. It should be continued.

The obvious success of LIHEAP is laudable and should be viewed as a sound foundation to improve and enhance the program further. LIHEAP costs could, perhaps, be reduced in a number of ways. For example, program administration efficiencies through streamlining may be available given the many years of established implementation of LIHEAP. Second, it may be possible to gain efficiencies through cooperative or "piggyback" ventures with existing utility fuel fund programs. Third, enhanced use of "leveraging" may draw more private or state and local funding to energy assistance by rewarding successful private or state and local efforts with a larger proportion of the federal funds available. Finally, the fifty creative state "laboratories" could be allowed more discretion and flexibility in their use of available federal funds. Some states may well adhere to the status quo, but others will invariably invent new and imaginative techniques for more efficient and effective distribution of funds. The federal program should encourage these kinds of initiatives and be the "clearinghouse" for communicating to all state program administration offices any novel developments from which all could benefit.

AGD appreciates this opportunity to comment on the FY '96 LIHEAP appropriations and respectfully urges the Subcommittee to continue this much-needed and model federal energy assistance program.

**PREPARED STATEMENT OF DONALD L. KLASS, PRESIDENT, BIOMASS
ENERGY RESEARCH ASSOCIATION**

This statement pertains to DOE's appropriation request for Biofuels Energy Systems.

I am Donald Klass, President of the Biomass Energy Research Association (BERA), a non-profit association headquartered in Washington, D.C. BERA was founded in 1982 by biofuels researchers and companies that are conducting biofuels research. Our objectives are to promote education and research on renewable biomass energy and waste-to-energy systems that can be economically utilized by the public, and to serve as a source of information on policies and programs for our members and industry.

For approximately 25 years, there has been general agreement among Republican and Democratic members of Congress that it is appropriate for the Federal Government to make a relatively modest investment in the development of biomass energy. During this period, the contribution of biomass energy to U.S. energy demand almost doubled to the point where it now supplies about 4% of our total energy needs. Many analysts believe the Third Oil Shock is just around the corner because of instability in several oil-producing countries and the U.S. dollar's exchange rates. Biomass energy can impact these problems. As I have stated so many times in the past to this Committee, biomass energy is the only indigenous renewable energy resource capable of displacing substantial amounts of coal, natural gas, and oil, which alone is responsible for over 40% of our trade deficit. Without belaboring the energy security, environmental, and economic benefits of biomass energy utilization, biomass energy research is a program that is on the verge of producing results capable of making significant incremental contributions to energy demand, and to the displacement of fossil fuels. BERA's members and Board of Directors realize that large Federal budgetary reductions are essential if we hope to gain control of our economy. But in view of the importance of biomass energy, we urge the Committee to sustain funding for its continued development in accordance with BERA's recommendations.

Specifically, BERA recommends that \$81 million be appropriated for biofuels research and development, and industry cost-shared scale-up and demonstration in FY96. The highlights of BERA's recommendations for FY96 are:

- A balanced research program of feedstock production, biochemical and thermochemical conversion, and technology transfer.
- \$53 million for research and \$28 million for industry cost-shared, scale-up and demonstration projects using best available technology.
- \$10 million for industry cost-shared scale-up of integrated biomass production (at least 1,000 acres per site) and conversion.
- \$10 million for industry cost-shared demonstration of electric power generation with biomass fuel.
- \$5 million for operation of NREL's process development unit for production of fuel ethanol from low-cost cellulosic feedstocks.
- \$3 million for industry cost-shared demonstration of advanced municipal solid waste conversion.
- \$11 million for technology transfer and commercialization activities managed by DOE's Regional Biomass Energy Program.
- Updating the multiyear program plan for Biofuels Energy Systems.

Regarding specific DOE budget categories, BERA recommends that funding be allocated in the following manner:

Office of Energy Efficiency and Renewable Energy	Area	Recommended Budget	
		Research	Scale-Up/Demo
Transportation Technologies	Feedstock Development	\$ 6,000,000	\$10,000,000
	Biochemical Conversion	10,000,000	5,000,000
	Thermochemical Conversion	8,000,000	
Utility Technologies	Thermochemical Conversion	12,000,000	
	Systems Development		10,000,000
Industrial Technologies	Municipal Solid Wastes and Chemicals	3,000,000	3,000,000
Technical and Financial Assistance	Regional Programs	11,000,000	
All Offices	Capital Equipment	3,000,000	
		<u>\$53,000,000</u>	<u>\$28,000,000</u>
		<u>\$81,000,000</u>	

BERA RECOMMENDS \$53.0 MILLION FOR RESEARCH AND \$28.0 MILLION FOR CONTINUATION OF INDUSTRY COST-SHARED, INTEGRATED, BIOMASS PRODUCTION-CONVERSION PROJECTS FOR FISCAL 1996

A Balanced Program of RD&D and Technology Transfer

Our recommendations comprise a balanced program of feedstock production and conversion research and technology transfer to the private sector with emphasis on end uses such as alternative liquid transportation fuels, advanced power generation technologies, and innovative municipal solid waste disposal-energy recovery systems having superior environmental benefits and minimal emissions. We also recommend that carefully selected, industry cost-shared, integrated biomass production-conversion scale-up projects shown by the feasibility studies initiated last year to be both economically and technically feasible be continued in fiscal 1996.

Considerable progress was made in fiscal 1995 by DOE to transfer research results to the private sector by the development of several Cooperative Research and Development Agreements (CRADAs), the continuation of the scale-up/demonstration gasification project (Hawaii), the dedication of the process development unit (PDU) for fuel ethanol (Golden, Colorado), and the initiation of 11 feasibility study projects to help select new integrated biomass production-conversion technologies for scale-up/demonstration. We strongly recommend that those projects which these studies indicate are technically and economically feasible be continued with industry cost-sharing in fiscal 1996. The BERA Board of Directors recommends that at least one new project be selected by DOE for scale-up in fiscal 1996 from the following conversion technology options: Methanol Production by Best Available Thermochemical Gasification Technology, Fuel Ethanol Production by Best Available Biochemical Technology, Electric Power Production from High-Efficiency Biomass-Fueled Gas Turbines, Municipal Solid Waste Disposal-Energy Recovery by Best Available Technology, Methane Production from Waste Biomass by Best Available Biological Gasification Technology, Liquid Fuel Production by Best Available Biomass Pyrolysis Technology, and Biomass Gasification-Fuel Cell Cogeneration. Whatever conversion technology is chosen by DOE for processing virgin biomass feedstocks, it should be integrated with a 1,000-acre-minimum, dedicated biomass feedstock production system that uses the advanced technology already developed in this program. These projects should be in addition to the medium-Btu gasification demonstration project in Hawaii, NREL's fuel ethanol process under development in the PDU in Golden, Colorado, the advanced medium-Btu gasification process for power production scheduled for implementation in Vermont, and the CRADAs between DOE and industry already in progress. A total appropriation of \$28,000,000 is recommended by BERA for these scale-up/demonstration projects as indicated below for the Offices of Transportation, Utility, and Industrial Technologies.

Detailed analysis of DOE's FY96 funding request for Biofuels Energy Systems shows line items under the Climate Change Action Plan initiatives of \$20 million for the 11 feasibility study projects and \$9.226 million for commercialization of industry cost-shared, integrated feedstock-power generation systems in the Utility Sector, and \$1.9 million for methane recovery from land-fills and \$1.984 million for advanced turbine systems fueled by biogas in the Industry Sector. These initiatives can lead to industry cost-shared scale-up work in FY96 in accordance with BERA's recommendations, but we would like to caution that the projects chosen for funding should not be those that industry has already perfected and commercialized such as medium-Btu gas recovery and utilization from landfills or those that industry is already funding on its own.

In addition, BERA strongly urges that the majority of federally funded biofuels research be conducted outside DOE's national laboratories. While it is desirable for the national laboratories to manage and coordinate DOE-sponsored research activities, support for independent U.S. scientists and engineers in industry and academe will encourage commercialization of emerging technologies and serious consideration of innovative approaches. It will also assist in the professional development and expertise of a broad and diverse group of researchers committed to the advancement of biomass energy technology and alternative fuels.

The following represents BERA's specific recommendations on the research areas and funding levels we urge you to include in the fiscal 1996 program.

OFFICE OF TRANSPORTATION TECHNOLOGIES

Biomass Production. Land-based biomass grown and harvested specifically for liquid biofuels represents a long-term approach to energy plantations that can supply large amounts of fossil fuel substitutes. Considerable progress has been made on the efficient production of short-rotation woody crops, and on the growth of herbaceous species for energy and fuel applications. In addition, research on tissue culture techniques and the application of genetic engineering methods to low-cost energy crop production have shown promise. This research should be continued as an integral part of the biofuels research program to develop advanced biomass production methods to meet expanding biomass energy utilization in both the transportation and power production sectors. Conventional production methods are insufficient to supply sustainable biomass energy over the long term. BERA recommends that \$6,000,000 be directed to continue biomass production research.

Scale-Up. BERA also recommends that industry cost-shared, scale-up projects chosen by DOE of at least 1,000 acres in size be started to initiate development of large-scale, commercial energy plantations in which dedicated energy crops are grown and harvested for use as biomass resources. After the plantations are established, conversion facilities should be added to develop integrated biomass production-conversion systems. These projects should be strategically located and should utilize the advanced biomass production methods developed from the research conducted to date. Successful completion of this work will help biomass energy attain its potential by providing the data and information needed to design, construct, and operate new, multi-quad energy supply systems for both the manufacture of fossil-fuel substitutes and power production. BERA recommends that the first year of this scale-up effort be funded at \$10,000,000.

Biochemical Conversion. Application of the rapidly advancing field of biotechnology to the conversion of low-cost biomass to liquid fuels such as ethanol has made great progress and should be continued. The successful genetic engineering of the bacteria *Zymomonas mobilis* so that this organism can now ferment xylose to ethanol at the same time as glucose is expected to result in a 10% reduction in the cost of fuel ethanol. Process evaluations by experts have identified key opportunities for early pay-backs with biochemical conversion systems, and new genetic engineering and other emerging biological approaches have made significant advances. Future research should be concentrated on conversion of low-cost feedstocks by high-yield, acid- and enzyme-catalyzed hydrolysis processes, on the development of organisms that can metabolize the hemicellulose components in the feedstocks, and on the utilization of the lignin fractions as octane enhancers and chemicals. Research is also recommended on the use of genetically engineered bacteria that can produce ethanol from low-cost feedstocks at higher rates and yields and on innovative processes for the production of butyl alcohols from biomass for conversion to methyl-*t*-butyl ether (MTBE) and ethyl-*t*-butyl ether (ETBE) gasoline additives.

Considerable progress has been made by U.S. researchers to develop biodiesel fuels from natural triglycerides produced by biochemical processes that occur within biomass. This research should be continued with emphasis on the reduction of biodiesel costs and on emissions and performance characteristics of biodiesel to satisfy the requirements of the EPA and engine manufacturers.

BERA recommends that \$10,000,000 be directed to continue biochemical conversion research for transportation applications.

Scale-Up. BERA recommends that \$5,000,000 be directed to operate NREL's PDU for production of fuel ethanol from low-cost cellulose by the simultaneous saccharification-fermentation process. This plant is being operated with a CRADA partner to obtain scale-up data, and numerous arrangements are in place with various industries and communities across the Nation to develop business plans that can result in widespread use of fuel ethanol-from-low-grade-biomass technology. Successful operation of the PDU will establish the technical feasibility of the process and help to confirm that fuel ethanol can be manufactured from low-cost feedstocks at prices competitive with petroleum-based motor fuels. The capital equipment appropriation of \$3,000,000 recommended by BERA should be utilized for PDU modifications if needed.

Thermochemical Conversion. Thermochemical conversion research to produce clean-burning, liquid transportation fuels at competitive costs is the prime target of this program component. Laboratory- and pilot-scale research has established the technical feasibility of several advanced liquefaction processes, and basic research has improved our understanding of the mechanisms of conversion. Direct conversion of wood and herbaceous feedstocks via pyrolysis to liquid fuels and their upgrading by advanced catalytic processes to transportation fuels show promise. Continued research is expected to increase the overall liquid yields to the point where the gasoline costs are competitive with those of petroleum-based fuels. Thermochemical liquefaction of low-grade biomass for the production of low-cost fuel ethanol, mixed alcohols, and ethers for use as fuels and octane enhancement also shows promise and merits investigation. BERA recommends that \$8,000,000 be directed to continue thermochemical conversion research for transportation applications.

OFFICE OF UTILITY TECHNOLOGIES

Electric Power Production. Currently, there are about 8,000 MW of on-line electric power capacity fueled with biomass. Development of advanced gasification processes has significant economic and environmental benefits that could lead to further expansion. Continued research on the thermochemical gasification of biomass has resulted in the development of advanced process designs and reactor configurations that maximize product yields and provide optimum product distributions. This work has been performed at the laboratory and pilot scales. Direct coupling of advanced biomass gasifiers to steam-injected gas turbines (STIGS) should be evaluated as a potential, high-efficiency power generation system. An alternative that should also be evaluated is the integration of high-yield biomass pyrolysis liquefaction processes with power generation either in STIGS or combined-cycle STIGS. Research should also be continued to develop reliable hot-gas clean-up methods that can be used with advanced gasification processes. BERA recommends that \$12,000,000 be appropriated for this research.

Systems Development. In addition to power production via medium-Btu gasification, which is now at the demonstration stage in Hawaii, at least one new industry, cost-shared demonstration project selected by DOE from those recommended by BERA should be started in FY96. BERA recommends that \$10,000,000 be appropriated for the first year of this effort.

OFFICE OF INDUSTRIAL TECHNOLOGIES

Municipal Solid Wastes. In combustion research, a need still exists for improved solid waste combustors that meet environmental requirements and cost goals. Research should be focused on systems that can be used for economic disposal of municipal solid wastes in small communities. Research is also needed to reduce the emissions of solid waste disposal processes and to characterize the specific pollutants produced under specific operating conditions. Other subjects needing additional research are the monitoring and control of combustion effluents, metal behavior in ash, and characterization of changing waste streams. Biological gasification of wastes is unique in that the process can directly produce methane, the major fuel component of natural gas, from the full range of low-cost biomass. Research is needed to develop novel systems that permit higher feedstock concentrations and smaller reactor volumes, and therefore lower capital costs. This research is expected to lead to practical methods for economic production of methane from low-cost biomass. And in the case of feedstocks such as municipal wastewaters, low-cost, integrated biomass production-waste stabilization-methane production systems are expected to evolve from continued research.

Chemicals. A wide range of petrochemical substitutes, such as solvents, adhesives, plastics, packaging materials, and chemicals such as organic acids can be manufactured from biomass residues. Research should be continued to develop advanced processes that utilize both thermochemical and biochemical conversion methods as well as advanced physical separation and processing techniques.

BERA recommends that \$3,000,000 be directed to continue research on both municipal solid waste conversion and disposal and chemicals from waste biomass and residues.

Demonstration. BERA also recommends that one demonstration project should be chosen by DOE from those recommended by BERA and initiated in FY96, and that \$3,000,000 be provided to conduct this industry cost-shared work.

OFFICE OF TECHNICAL AND FINANCIAL ASSISTANCE

Regional Biomass Energy Programs. The Regional Programs established by Congress in 1983 are implemented through five separate regions located in the Southeast, Northwest, West, Great Lakes, and Northeast. These programs have been important in establishing individual state biomass programs, and in stimulating technology transfer and the development and commercialization of the biomass energy industry in the private sector. The Regional Program activities have created awareness and a positive image for biomass energy while providing significant environmental enhancement and creating new jobs - especially in rural areas. Activities are typically highly leveraged with program participants adding two to four times federal dollars. One example is the development and installation of low-cost, anaerobic lagoons for treatment of livestock waste and generation of methane. This technology is usable in hundreds of applications and offers combined energy recovery and waste treatment, while capturing and using methane that would otherwise contribute to global climate change.

BERA is particularly interested in promoting the transfer of commercial and near-commercial biomass technology to the private sector, and feels that DOE needs to place more emphasis on this effort. BERA also believes there should be better cooperation and coordination between DOE's Regional Program and Research Program managers to help achieve this objective. The five Regional Programs should be maintained to continue development of the biomass industry. BERA urges that \$11,000,000 be provided to continue and expand the work of the Regional Programs.

BERA also recommends that DOE be directed to report back to the Committee within 120 days on efforts to strengthen the coordination between these two program components and to improve technology transfer to the private sector.

ALL ENERGY EFFICIENCY AND RENEWABLE ENERGY OFFICES

Program Planning. DOE's multiyear biofuels program was updated in FY 1993. BERA recommends that the plan be updated at least every two years, and that DOE be directed to supply the Committee with an updated program plan within 120 days.

PREPARED STATEMENT OF DEPUTY MAYOR TOM SANFORD, CITY OF GRIDLEY, CA

Mr. Chairman, Members of the Subcommittee, my name is Tom Sanford, and I am the Mayor Pro Tem of the City of Gridley, California. I also serve as Gridley's commissioner on the governing board of the Northern California Power Agency.

Thank you for the opportunity to testify before the Subcommittee regarding the progress that the City of Gridley has made over the last year in developing a biomass facility fueled by rice straw.

Let me say from the outset that we greatly appreciate the Subcommittee's past support, particularly the support of the City of Gridley's own congressman, Congressman Vic Fazio, and Congressman Wally Herger who represents the City of Biggs, just three miles north of Gridley, and we look forward to continuing to work with you to establish a cost-effective, subsidy-independent, renewable source of liquid fuel for both transportation and power production purposes as well as expand the commercial relationship between biomass and fuel cells for power generation.

The City of Gridley, which operates its own electrical utility, is involved in the development of this technology for a number of reasons. First, the City of Gridley is a rural community situated in the rice growing region of the Sacramento Valley in Northern California. Our community and region are dependent upon an agricultural economy largely based upon rice production. Thousands of jobs and more than \$500 million of the Sacramento Valley's economy are directly dependent upon the rice industry.

The rice industry, however, is coming under tremendous pressure because of new mandates to reduce air pollution and end open field burning of rice acreage. Currently, open field burning has been statutorily reduced to 60 percent of a grower's acreage. By the year 2000, the automatic right to burn rice stubble in open fields will be essentially eliminated. Given that there are insufficient cost-effective mechanisms to remove rice straw from the fields, we are greatly concerned that the restrictions on burning will lead to a reduction in rice acreage in production. A substantial portion of the rice grown in the Sacramento Valley is grown on land with very heavy clay soil types which are suitable for very little other than rice. The elimination of burning as a means of dealing with the very tough rice straw is having a significant impact upon the economics of rice growing in the Valley.

Second, the City of Gridley is very concerned about the reliability of its existing source of electrical power. The City of Gridley's Western Area Power Administration (WAPA) electrical contract expires in 2004. Early projections indicate that our WAPA allocations could be reduced by up to 60 percent. In addition, the administration's proposal, in the 1996 budget, to sell-off the WAPA facilities, has created even further uncertainty as to the ongoing sources of electrical energy from which the City will serve the electrical needs of its citizens on an affordable basis.

It is the confluence of these two issues -- the mandatory elimination of the burning of rice straw in open fields and the threatened loss of the majority of our WAPA power -- that has led the City of Gridley to aggressively pursue the construction of a biomass ethanol plant to help protect our agricultural economy and address our near-term and long-term power needs.

Over the last year, the City of Gridley has put together a consortium that we believe can match the capabilities of any similar concern in the United States. We have brought together some of the top companies in the country that have focused on the development of a domestic liquid fuel biomass industry. We have proven engineering capabilities through Amoco and Stone and Webster, and the backing of two major utilities (Northern California Power Agency and the Sacramento Municipal Utility District), the California Department of Food and Agriculture, the University of California at Davis and the California Rice Industry Association. In addition, Mr. Chairman, our consortium has worked very closely with the

Department of Energy's National Renewable Energy Laboratory, and, in the process, won the laboratory's strong confidence and endorsement. We have also cleared some key tests of rice straw as a biomass fuel and begun the final technical assessment of the key technologies that make up our proposed process.

The City is also working with the Northern California Power Agency and the leadership of the City of Santa Clara in the commercial development of fuel cells and their utilization through the gasification of biomass fuels.

None of this progress could have been made without the support and backing of this Subcommittee in the fiscal year 1995 Energy and Water Development Appropriations Act. The \$1,200,000 appropriated by the Congress last year for this effort was essential to bringing together all of the resources that we have amassed to pursue the construction of a biomass ethanol plant for the benefit of our region, the state and the nation. It is important that the technology developed by NREL and Amoco be applied on a commercial basis to satisfy the financial community that the technology will compete independent of Government subsidies. Again, for that we are very grateful.

Mr. Chairman, in order to move the research and development work to the next step, to the construction of a biomass ethanol plant, the City of Gridley and its non-Federal cost-share partners request \$5,000,000 in fiscal year 1996. The request represents what is intended to be the first of two equal commitments of federal resources that will be needed in order for the City of Gridley and its partners to construct the optimum sized biomass ethanol plant.

We seek these funds in addition to the \$23,878,000 requested by the administration for biochemical conversion. We believe the research and experimental activities supported by the administration's fiscal year 1996 request, particularly the work associated with the new biomass pilot facility at NREL, will be critical to the success of the Gridley project and future biomass efforts. It is for these reasons that we ask the Subcommittee to direct that any funds provided for the Gridley biomass plant not result in reductions to the base biochemical conversion budget.

Why is there a need for the federal government to make this investment? Currently, biomass to ethanol production is primarily conducted in the mid-west using corn husks and waste as the principal feedstock. Ethanol is the sole product of this current process, which makes the economic viability of the technology completely dependent upon the current state of the ethanol market.

The technologies that will be used in the Gridley project more fully utilizes the feed stock to produce a number of useful products while at the same time minimizing the byproducts requiring disposal. This will significantly improve the sustainability of the project and the technology.

In addition, rather than using a single feedstock that would necessitate a more seasonal operation, like most current biomass facilities, the Gridley project envisions the use of multiple feed stocks to keep the plant operating year-round. The construction of the Gridley plant will develop the technologies and processes necessary for the cost-effective use of forest and timber industry byproducts as well as agricultural waste products. We intend to test and use vineyard clippings and orchard prunings as well as residues from corn processing and wine production. Clearly, this plant will expand biomass opportunities to a broad array of industries and agricultural commodities, which will be beneficial to other parts of the state as well as other regions of the country.

Mr. Chairman, I would like to make one final point: the City of Gridley and its partners are prepared to match, dollar-for-dollar, any funds appropriated for the construction of our proposed biomass ethanol plant. We have the resources available to match the full \$5,000,000 request for fiscal year 1996.

Again, thank you for your past support and for this opportunity to testify. If you have questions regarding our proposal, I would be happy to try to answer them.

Thank you.

PREPARED STATEMENT OF PROFESSOR DAVID K. WEHE, UNIVERSITY OF MICHIGAN

The U.S. Department of Energy has provided support to the DOE University Program in Robotics during the period FY'87-FY'95 to pursue long range research leading to the:

"development and deployment of advanced robotic systems capable of reducing human exposure to hazardous environments, and of performing a broad spectrum of tasks more efficiently than utilizing humans."

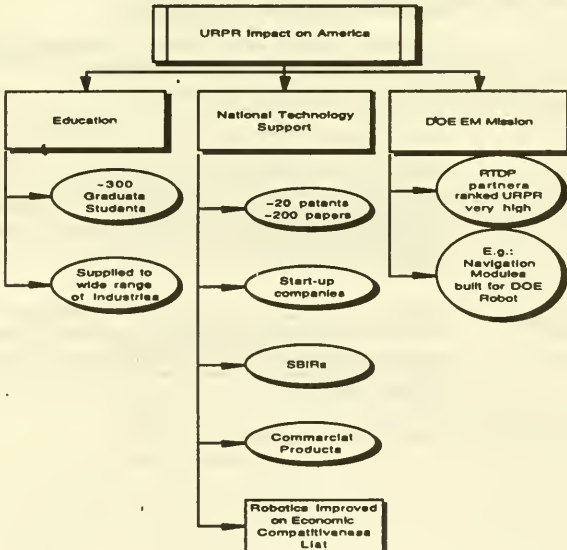
The DOE University Research Program in Robotics (URPR) is an important element of the Robotics Technology Development Program (RTDP) within the DOE EM's Office of Technology Development (OTD). The integration of the DOE University Program in Robotics into RTDP, through the full cooperation of six national laboratories, has strengthened RTDP, and has provided an avenue for the productive results of university research to find direct applications in problems of vital interest to DOE. This program would like to thank the committee members for their historically strong support
Developing Advanced Robotics for DOE

Developing Advanced Robotics for DOE

Develop robotic solutions for work in hazardous environments

The goal of this program is to utilize and advance state-of-the-art robotic technology in order to remove humans from potentially hazardous environments. Established by DOE in FY'87, the project has produced an impressive array of technological innovations which have been incorporated into the commercial sector. This program has reached a state of maturity and is immersed in efficiently educating the technologists and inventing our country's advanced robotic technology of the next century while meeting today's technology needs for DOE.

Impact on America



The URPR continues to make a significant impact on American robotic and manufacturing technology in three areas: education, national technology development, and DOE mission support.

Robotics: strategic national technology

SELECTED U.S. TECHNOLOGIES		
	1991	1994
Materials		
Advanced metals	■	■
Structural ceramics	■	■
Silicon	■	■
Membranes	■	■
Manufacturing		
Landing edge sci instr	■	■
Design for manufacturing	■	■
Total quality management	■	■
Automation and robotics	■	■
Electronics		
Laser devices	■	■
Photonics	■	■
Optical info. storage	■	■
Printed circuit board tech	■	■
■ competitive ■ weak ■ losers		

The Council on Economic Competitiveness compares key U.S. technological capabilities to its international competitors. Of the several strategic areas listed as an *essential need*, *robotics and advanced manufacturing* was one of a handful listed in critical condition. This conclusion was also echoed in the DOD OTA technology assessment report. In addition, the 1991 Office of Science and Technology's (OSTP) National Technology Assessment listed robotics as one of the five most vital strategic technologies for government support. The national need for a concerted thrust in the development of robotics has been universally recognized.

The 1994 update to the Council on Economic Competitiveness Report shows robotics has moved from "loser" up to to "weak" when compared with international competitors. The URPR has played a major role in this improvement. Through the production of advanced students and technology, the program has enhanced our long-range international industrial competitiveness. This is seen in the commercial products which have resulted from this work, the role of the graduates of this project in manufacturing, environmental, and educational programs throughout the country, and the applicability of this work to DOE's Environmental Restoration and Waste Management Program and the Advanced National Manufacturing Program.

This progress, if allowed to continue, will reposition the U.S. as the "competitive" leader and predominant force in this international industry.

IMPACT: Educating 21st Century Technologists

The URPR has educated about 300 advanced degree students in the critical engineering fields, including many with doctorates. These students have now entered the work force, and are contributing to the industrial resurgence based on robotics and advanced manufacturing technology. Graduates from this project have built successful startup companies in computer vision (MI), video databases (CA), and intelligent manufacturing (MI, FL, TX). Society has received students educated in a vital technology area at substantially lower costs than using federally-funded fellowships.

IMPACT: Innovation

The URPR has produced prodigious levels of innovation in research and development. While current demonstrations reveal next-generation technologies, even more advanced capabilities continue to emerge from the laboratories. These include new types of locomotion (small flying robots, multiple degree of freedom vehicles), navigation techniques, sensing modalities (radiation cameras and laser imaging devices), environmentally hardened components (for temperature and radiation), and dextrous manipulators. These new machines have an unparalleled man-machine interface and inherent intelligence, with the capability of being able to integrate many diverse sensors simultaneously. These devices will become or inspire the intelligent machines of the next century, including smart wheel chairs and obstacle avoidance aids for the blind.

This innovation can also be seen in the following statistics:

- o An estimated 24 patents filed. At the last international Mobile Robots conference, 30% of the papers presented cited the fiducial work being performed by the URPR.

- o Over 200 technical papers published in technical journals and conferences.

- o The URPR robot CARMEL won the first National Robot Competition and was awarded the Best in What's New in Technology for 1992 by Popular Science magazine. During the 1993 National Robot Exhibition, two URPR robots worked autonomously and collaboratively to locate, move, and reorganize large objects. This was the first demonstration of autonomous robots working together to accomplish tasks at a national forum. This project has been heralded worldwide, and praised by Popular Science, CNN News, as well as featured in technical journals, such as the Artificial Intelligence (AI) Magazine.

IMPACT: Technology for Corporate America

In addition to research and education, the URPR contributes directly to an important mission area: technology transfer. The URPR's research agenda is determined through interactions with the national laboratories and private industries active in the area of robotics. This application-driven research has yielded results leading to products in the commercial sector.

The list of URPR technology transfer successes include radiation imaging cameras which can be purchased commercially from RMD, techniques for ultrasonic noise rejection and a multiple degree of freedom vehicle which are being licensed to commercial interests. In addition, technology transfer is in process through joint SBIR grants with small businesses (TRC, RMD, Schilling, Bonneville Scientific, REMOTEC, Sopha Medical), and joint research projects (e.g., RedZone Robotics, Inc.).

Private industry still lacks the ability to undertake the long-range R&D programs which lead to these commercial successes. Although problem-specific solutions to DOE problems tend to be too narrow for broad commercial interests, the URPR is particularly proud of its success in transferring innovations into viable commercial products, and will continue to emphasize this flow whenever appropriate.

IMPACT: Robotics for DOE Environmental Management and Cleanup

The motives for undertaking a comprehensive research effort in the application of advanced robotics to EM tasks in hazardous environments reflect both economic considerations and health and safety concerns. As part of RTDP, the URPR is contributing to minimizing risks to human health, enhancing workers safety, reducing secondary waste, and protecting the environment. The URPR supports needs-driven applied research to develop innovative and synergistic technologies in support of five RTDP thrust areas: Cross-Cutting and Advanced Technology (CC&AT), Contaminant Analysis Automation (CAA), Decontamination & Dismantlement (D&D), Mixed Waste Operations (MWO), and Tank Waste Retrieval (TWR).

During FY'95, the URPR/RTDP achieved its 9 planned goals, including:

1. deployment of a waste drum inspection robot in a Fernald warehouse,
2. completed development of a control system and dual-arm robot,
3. validated automated chemical and radiological analysis modules, and
4. continued development of the long-reach manipulator-based TWR test system.

For FY'95, the URPR was unanimously ranked as providing outstanding technical contributions and value by the RTDP coordinators and DOE Program Manager.

For FY'96, the URPR/RTDP proposes to attack four DOE technology goals:

1. complete development of a fully functional tank waste retrieval (TWR) test system,
2. demonstrate a dual-arm work module for D&D and TWR, and develop a mobile robot for autonomous environmental assessments of large areas,
3. demonstrate automated analytical chemistry modules for contaminants,
4. complete systems for automated handling of mixed waste materials, and robots for automated inventory inspections.

As part of the D&D effort, robots equipped with advanced sensors and controls are being designed and built to perform surveillance, characterization, decontamination, and dismantlement of high radiation facilities which have been targeted for decommissioning by DOE.

IMPACT: Cost Efficient Technology Generation

National policy has focused on economic growth and world leadership in science and technology. In concert with these thrusts, the URPR efficiently integrates education, research, and technology transfer in a natural and effective way. By integrating DOE needs, research, education, and technology transfer as a continuous project process, a new and cost-effective paradigm for DOE programs is being proven.

Program Request

During FY'95, the URPR provided vital contributions to education and research while meeting DOE technology needs. The motivation for this project remains steadfast — removing humans from hazardous environments while enhancing safety, reducing costs, and increasing productivity.

Request for the Committee

To continue this vital program, we request that the Committee include the following language into the FY'96 Energy and Water Appropriations Bill:

The committee allocates \$4 million of the Office of Technology Development (OTD) nondefense research funds to continue the University Research Program in Robotics (URPR) efforts to develop safer, less expensive, and more efficient robotics for environmental restoration and waste management; bringing the total RTDP budget for FY'96 to \$27.6 M.

**PREPARED STATEMENT OF STEVEN M. MIRIN, CHIEF EXECUTIVE OFFICER,
MC LEAN HOSPITAL, BELMONT, MA**

Mr. Chairman and Members of the Subcommittee, thank you for affording me the opportunity to appear before you today. I am Dr. Steven Mirin, Chief Executive Officer and Psychiatrist in Chief of McLean Hospital, located in Belmont, Massachusetts.

BACKGROUND

McLean Hospital is a not-for-profit comprehensive center specializing in psychiatric treatment and research. We are a major teaching hospital of the Harvard Medical School and an affiliate of the Massachusetts General Hospital. For one hundred-eighty years, McLean has served the needs of the mentally ill and their families. The Hospital offers a broad spectrum of general and specialized programs and services that include inpatient, community residential, and outpatient care. We are also a training site for professionals in all the mental health disciplines and home to one of the nation's largest groups of scientists specializing in mental illness research. The McLean research community includes over 270 research investigators and staff working on more than 380 research projects. Within our facilities and programs, these scientists carry out basic and clinical studies to advance our knowledge about the causes of these devastating illnesses and to develop more effective methods of treating and preventing them.

HIGH-TECH INSTRUMENTATION: NECESSARY TOOLS FOR TREATMENT AND RESEARCH

Mental illness affects over 30 million Americans, causing untold suffering and over 300 billion dollars of expense yearly in treatment costs and lost productivity. Fortunately, over the last two decades, there have been dramatic advances in our understanding of mental illness, and with these, the development of more effective treatments and the hope that we may some day be able to prevent these disorders. For example, the application of powerful new technologies in molecular biology have led to the discovery of genes that predispose individuals to the development of Huntington's and Alzheimer's disease, as well as providing us with clues as why some people are at greater risk to develop alcoholism or manic-depressive illness than others. At the same time, modern imaging techniques like positron emission tomography (PET), single photon emission computerized tomography (SPECT) and magnetic resonance imaging (MRI), have enabled us to study the structure, chemistry and function of the brain in living patients at a level of detail that was unimaginable a decade ago. Such studies promise to enhance our understanding about how and why mental disorders affect thinking and behavior and provide a basis for the early diagnosis and more effective treatment for future generations of patients. In 1988, in recognition of this fact, McLean Hospital augmented its efforts in neuroscience research by establishing a Brain Imaging Center, the only one in the nation completely dedicated to clinical evaluation and research for the mentally ill.

Though currently available technology and research has dramatically changed the outlook for the victims of mental disorder, future research will require even more sophisticated technology to exploit and advance our efforts in this arena. In mental illness, as in all other areas of medical research, future progress requires the use of highly specialized and, unfortunately, expensive, equipment, such as laser confocal microscopes and imaging devices, including newer, high field, MR instruments, to study humans, animals and even single isolated brain cells. However, it is difficult, if not impossible, for academic institutions to develop and acquire this type of technology on their own. Thus, continued

research advances will require the continuation of federal support for the sophisticated instrumentation needed to conduct studies that will enhance our understanding of how the brain works in health and disease.

The Department of Energy has played an important role in the development of these technologies and the Department's continued support of such efforts, through its Biological and Environmental Research Program, is absolutely essential if the progress we have made thus far is to continue and ultimately, be translated into better care for patients. As you know, one of the primary objectives of the BER program is to utilize the Department's unique scientific and technological capabilities to solve major scientific problems in medicine and biology. In meeting this objective, the BER program is playing a unique, and critical, role.

FY 96 BUDGET OUTLOOK AND RECOMMENDATIONS

For FY 1996, the Department of Energy has proposed a \$4.9 million reduction for the Biological and Environmental Research (BER) program, which would bring total funding down to \$431.7 million. The largest component of BER's activity is general life sciences research. Research in this area supports the development of fundamental biological information and technologies. On behalf of McLean's research community and scientists everywhere, I ask the Committee to, at a minimum, fund the Administration's request for \$113.6 million in FY 96 for this component of the BER program, and to include language in its report which encourages the Department to support research in the development, and shared use, of high field MR instruments for the study of brain function in centers where these research efforts can lead to improved diagnosis and treatment of the mentally ill.

Thank you for your attention and your support of these important efforts.

PREPARED STATEMENT OF CYNTHIA SPENCE, ASSOCIATED DEAN FOR ACADEMIC AFFAIRS, SPELMAN COLLEGE

BACKGROUND

Mr. Chairman, other Members of the Committee, I am Dr. Cynthia Spence, Associate Dean for Academic Affairs at Spelman College. Spelman College is the nation's leading undergraduate educator of African American women. Founded in 1881, with an investment of \$100, the College enrolled 11 women students who had been slaves. The College now enrolls about 2,000 students and employs 130 full-time faculty members.

Over the years, the College has earned international distinction for its science, engineering and mathematics program. The College launched its science program during the early 70s, long before science education was embraced as a national priority. Today, fully 38 percent of the College's diverse student body major in the sciences, mathematics, or a dual degree program in engineering, and 30 percent graduate annually in these areas. According to a 1993 survey of the top 100 baccalaureate degree producers, Spelman ranked second for the number of degrees awarded to African Americans in mathematics; fifth for the number of degrees in the physical sciences; and

seventh for the number of degrees awarded in the biological sciences. Since 1988, the College has witnessed a 57 percent increase in the number of science majors entering graduate programs. Some of our graduate school partners include: Cornell University, Purdue University, Massachusetts Institute of Technology, Georgia Institute of Technology, University of Michigan, and University of Wisconsin.

Spelman's achievements in the science, mathematics and engineering areas, any many ways, are unparalleled, and do not reflect national trends. Unfortunately, when reviewing trends related to women of color studying mathematics, science, and engineering, we see that, today, a young African American girl has one chance in 21,000 of ever getting a Ph.D. in these areas. Conversely, she has two chances in five of dropping out of high school before graduation. As the Congress grapples with welfare reform, I know the Committee is aware of these issues.

The Federal science agencies are struggling with these issues as well. Take for example, data cited in a recent speech delivered to Fort Valley State College by Terry Cornwell Rumsey, the Director of DOE's Office of Science Education and Technical Information. In her speech, she shared data confirming a decline in the number of minorities receiving Ph.Ds. in the science disciplines. For instance, she noted that in 1975 only 41 African Americans received Ph.D.s. By 1990, the number had fallen to 21.

These trends truly are disturbing. As our nation's trade deficit continues to climb, and the budget deficit defies our most noble efforts to bring it under control, it is clear that the talents and skills of *every American* will be needed to enhance our nation's productivity and to meet the challenges of the next century and beyond.

CURRENT ENERGY AND ENVIRONMENTAL CHALLENGES

Looking specifically at the areas of science and technology, there are many complex challenges facing the United States, and, more pertinently, the Department of Energy, particularly as these

issues relate to the National Laboratories, energy efficiency and environmental cleanup. In a report "Alternative Futures for the Department of Energy National Laboratories," also known as the "Galvin Report," released last month by the Secretary of Energy's Advisory Board, it is noted that during the next 20 years, world energy demand will grow by 50 percent. The report concludes that considering the environmental impact of current modes of energy use, enhancing the efficiency of energy utilization, and finding substitutes for fossil fuels is of "critical national importance." The report also found that "the global market for clean energy sources could be in the hundreds of billions of dollars 20 to 30 years from now."

In the area of environmental cleanup, the report outlines concerns related to DOE's ability to have all of its sites cleaned up by 2019. For the entire 3365 square miles of the DOE complex, the report found that the problems associated with radioactive and hazardous waste are acute and pervasive. Similar findings were included in a May 1994 report prepared by the Congressional Budget Office, "Cleaning up the Department of Energy's Nuclear Weapons Complex." The CBO analysis reports that the DOE complex "holds in storage over 100 million gallons of highly radioactive waste, 66 million gallons of waste contaminated with plutonium, and even larger volumes of waste with lower levels of radioactivity. As recently as 1993, DOE estimated that the cost of cleanup ranges from \$400 billion to \$1 trillion.

Clearly, a trained and scientifically-literate workforce is needed to meet these daunting tasks. In response to these trends many institutions of higher education have invested significant resources to enhance their science and technology activities. At Spelman, we recently appointed Dr. Mae Jemison, a former NASA astronaut, to the College's Board of Trustees. Additionally, the College has appointed an Associate Provost for Science Policies and Programs, increased faculty by 33 percent since 1988, and launched a \$22 million science campaign with over 40 corporate partners. Despite these efforts, more resources are required. Small undergraduate science centers of excellence like Spelman cannot conquer these challenges alone. We need internship, faculty research, instrumentation and capacity-building support. Particularly as the nation's attention turns

toward environmental science. We desperately need undergraduate curriculum models in this area. In this vein, every segment of our republic -- industrial, educational, and governmental -- must develop linkages needed to equip women and men with the skills needed to move our country forward.

The role of the Federal government in this effort is critical. A report released last summer, "Technology for a Sustainable Future," by the National Science and Technology Council, the organization charged with coordinating science, space and technology policy across the Federal government, concluded that the Federal government will need to *"facilitate the training of a cadre of skilled technical workers to help develop, maintain, and operate the increasingly complex environmental technologies and support the development of holistic, multidisciplinary curricula in universities, emphasizing pollution prevention and efficiency in the use of resources."*

In addressing these national educational and workforce challenges, the Department of Energy plays a unique and key role. With over 20 national laboratories and facilities, the Department of Energy has the largest scientific research and development system in the world. DOE reports that more than 30,000 scientists and engineers are associated with DOE-sponsored activities.

RECOMMENDATIONS

With this in mind, Spelman College requests that the Committee at least level-fund the university and Science Education programs at \$66 million. We also ask that programs in the Office of Environmental Restoration and Waste Management, the Office of Energy Efficiency, and the Office of Energy Research that support public/private partnerships with institutions of higher education be level-funded. And finally, we ask the Committee to encourage DOE to continue to strengthen its efforts to build partnerships with undergraduate institutions of excellence, like Spelman College -- small schools with a legacy of achievements, but limited resources -- the very schools that are out front in terms of educating and training the majority of our nation's youth.

I would like to thank the Committee for permitting me to testify today on behalf of Spelman College.

**PREPARED STATEMENT OF PHILLIP BAYNE, PRESIDENT AND CHIEF
EXECUTIVE OFFICER, NUCLEAR ENERGY INSTITUTE**

Mr. Chairman and Members of the Subcommittee:

As president and chief executive officer of the Nuclear Energy Institute (NEI), I am pleased to present NEI's views on the administration's budget request for certain nuclear energy programs for fiscal year 1996.

NEI represents more than 350 companies and organizations worldwide, including all U.S. electric utilities that operate nuclear power plants, nuclear plant equipment suppliers, engineering/construction firms, nuclear fuel cycle companies, suppliers of radionuclides and radiopharmaceuticals, law firms, consulting firms and labor unions.

We would like to thank members of this subcommittee for consistently supporting the proposition that nuclear energy must continue to be an essential component of the nation's energy mix. Electricity provides one of the cleanest sources of energy as we strive to protect our environment while maintaining a desirable quality of life. Generating electricity at nuclear power plants produces no air pollutants or greenhouse gases, and is recognized as an important source of energy by those seeking workable solutions to our environmental and energy demand needs.

While the administration's FY96 budget proposal affects several components of the nuclear energy industry, I would like to focus on three issues: the Department of Energy's civilian high-level nuclear waste disposal program, funded through the Office of Civilian Radioactive Waste Management (OCRWM), user fees charged to nuclear utilities to fully fund the Nuclear Regulatory Commission, and the advanced reactor research and development effort funded through DOE's Office of Nuclear Energy.

Spent Nuclear Fuel Management

Developing an integrated spent nuclear fuel management system is one of the most critical environmental issues facing our nation. The United States simply must resolve this important issue. The nuclear energy industry stands ready to work to develop an integrated spent nuclear fuel management system—including a central interim storage facility; a permanent disposal facility; multipurpose canisters to hold used fuel during transportation, storage and disposal; and a transportation network.

The nuclear energy industry has general principles that we believe should guide Congress as it reshapes the current DOE program:

- DOE must accept its responsibility to develop and begin implementing a waste management system that is capable of removing spent fuel from nuclear reactor sites beginning in 1998.
- Congress must designate a location for, and mandate construction of, a federal interim storage facility and the necessary transportation network to ensure access to the facility from existing rail lines.
- Milestones must be established for the development of the interim storage facility, transportation infrastructure and multipurpose containers to support spent fuel acceptance no later than Jan. 31, 1998.

- The current schedule for development of a repository must not be delayed. Disposal of spent fuel remains the ultimate program objective.

DOE must gain access to money in the Nuclear Waste Fund, including the existing balance of the fund. Current budgetary constraints have created a situation where Congress is unable to provide Department of Energy access to the balance of the NWF. Legislation before the House and Senate would provide access to the more than \$4 billion in the NWF, but maintain congressional oversight by the Senate and House Appropriations committees. Access to the balance would speed the progress of site characterization at Yucca Mountain and provide the funding needed to develop other components of the integrated spent nuclear fuel management system—a central interim storage facility, multi-purpose canisters, and transportation facilities. With these components, the federal government would have a system in place to meet its pledge to nuclear utility customers to manage spent nuclear fuel.

Under the Nuclear Waste Policy Act (NWPA) and the standard contract between DOE and utilities, the federal government has the responsibility to begin taking spent nuclear fuel in 1998. Utilities and their customers have since 1983 paid a one-mill per kilowatt-hour fee to fund this program. To date, those collections, plus interest and other obligations, exceed \$10 billion.

Electricity consumers have held up their side of the contract. The federal government must do the same. DOE has stated it will not meet its 1998 responsibility absent a significant change in program direction. By 1998, 26 reactors will have exhausted existing spent fuel storage capacity. By 2010, the earliest date a repository could be operating, 80 units will have depleted current storage capacity.

As the members of this subcommittee well know, utilities and state regulators are increasingly concerned about the equity of requiring utility customers to pay for both the DOE civilian radioactive waste program and additional at reactor storage. One of the most vivid examples of the growing frustration over this program are separate lawsuits filed against the Energy Department by 17 utilities and 28 states asking the Circuit Court of Appeals to rule that the DOE must begin accepting spent fuel beginning in 1998.

DOE recognizes that failing to meet its 1998 responsibility will cause utilities and their customers to face significant costs associated with expanding spent fuel storage at reactor sites. The Energy Department has recognized the need for—and sought—higher annual appropriations from the Nuclear Waste Fund to maintain project schedules at the proposed repository at Yucca Mountain. And, more recently, Secretary O'Leary, for the first time, has requested the authorization to build federal interim storage capability.

The industry welcomes these positive signs. By themselves, however, they do not solve the problem. The nuclear waste disposal problem will be solved only when the federal government satisfies its unconditional obligation to begin accepting spent nuclear fuel beginning in 1998.

We are ready to work with the administration and Congress in the development of an integrated spent nuclear fuel management system that can satisfy DOE's commitment to electricity consumers beginning in 1998.

The industry recognizes that any interim storage program will be meaningful only if DOE continues to make progress in developing a permanent repository. To resolve

licenseability issues at Yucca Mountain in a timely manner, site characterization activities must be fully and properly funded.

The administration's FY96 budget request recognizes the need for increased funding to resolve this national environmental issue. DOE has requested \$630 million for site characterization of Yucca Mountain—26 percent more than the FY95 allocation. The nuclear energy industry recommends that DOE restructure its budget priorities to reflect the need for a centralized interim storage facility in 1998 and asks this subcommittee instruct the Energy Department to allocated funding in the following order of importance—1) the development and licensing of an interim storage facility and multipurpose canister system to ship and store spent fuel, 2) the acquisition of rights of way and construction and operation of a railroad to connect to existing rail lines, and 3) the development of a repository.

We support comprehensive legislation that provides a release of the funding from restrictions imposed by discretionary spending caps and creates an integrated spent fuel management system.

NRC Budget/Regulatory Review

Since FY91, licensees of the Nuclear Regulatory Commission have shouldered the entire cost of the agency's budget through annual user fee payments. Of the NRC's FY95 budget, 85 percent—\$504 million—is recovered by assessing user fees to utilities and their customers. The average utility licensee pays \$2.9 million per nuclear power plant plus an average of \$1 million per plant in hourly charges for NRC activities. This level of support is unique to the nuclear energy industry.

The nuclear energy industry has a profound interest in ensuring that the NRC's costs are no higher than required for the agency to ensure protection of public health and safety. We are also dedicated to ensuring that the percentage of NRC costs paid by our members is no higher than the percentage of agency resources dedicated to regulating our industry.

Unfortunately, there is a pressing need for improvement in containing the NRC budget and in ensuring the equity of the NRC's user fee policy. The NRC's budget request for FY96 is \$525.8 million, which represents an effort on the commission's part to control costs over the past two years.

However, since FY90—the year before Congress instituted 100 percent user fees to fund the NRC budget—the commission budget has increased by approximately 25 percent. There is clear evidence of budget and management inefficiencies at the NRC. The NRC Inspector General (IG) has published several reports since 1992 that document management deficiencies at the NRC that can be directly attributed to its user fee policy. The total cost of these and other management problems identified by the IG is in the tens of millions of dollars.

Congress should consider instituting an independent NRC budget and programmatic review. In addition to reviewing NRC programs and budgets to ensure their cost-effectiveness, the review committee should also allow licensees input into the NRC budget process.

A 1994 NRC staff report details a number of injustices, and includes several recommendations for legislative action that would inject a measure of fairness into the current fee structure. The study found that utilities pay at least \$35.1 million

annually in fees to support activities that have no bearing on the regulation of commercial nuclear energy facilities.

Given the serious nature of these findings, we feel it is incumbent upon the NRC to work with the Office of Management and Budget and others to redress the inequities of the fee structure. We also urge this subcommittee to support any policy changes recommended by the NRC to begin this process before the start of the new fiscal year.

I would also like to report to the subcommittee the results of an assessment of the U.S. nuclear regulatory process that documents situations and issues where NRC regulations or the regulatory process do not achieve the desired effect. The consulting firm Towers Perrin interviewed chief executive officers, senior nuclear executives, plant managers and other personnel at nuclear utilities to gather views on the impact of the regulatory process.

The report—*Nuclear Regulatory Review Study*—reflects a number of serious industry concerns about that process. As the industry has indicated to the commission many times in the past, the industry believes the NRC uses a number of subjective, informal regulatory instruments to exert pressure on nuclear utilities to comply with NRC staff demands and expectations, well beyond what is required by formal regulations.

The industry is seeking to redefine the relationship between the NRC and its nuclear utility licensees to achieve a regulatory environment that: 1) preserves the commission's statutory mandate to protect public health safety; 2) preserves the licensee's ultimate responsibility for safe operation; and 3) meets certain fundamental criteria of openness, clarity, and consistency.

As an industry, we believe the report correctly identifies the existence of problems at the interface between the NRC and its licensees, and we believe those problems deserve serious, even-handed consideration. There is no simple fix for these problems. Rather, they require long-term, persistent effort. Only strong leadership by the NRC senior management, coupled with a coordinated commitment by the nuclear utility industry, can correct these deeply rooted problems and provide the regulatory framework in which nuclear utilities can operate their plants safely and at a reduced cost to consumers of electricity generated at these facilities.

Advanced Reactor Research And Development

In the area of advanced nuclear energy research and development (R&D), the Energy Policy Act of 1992 provided a multi-year authorization for the Advanced Light Water Reactor (ALWR) design certification and first-of-a-kind engineering (FOAKE) programs to support the commercialization of advanced reactor designs on the basis that the industry provide at least half of the funding. The law also authorized continued support for research and development on advanced reactor technology, leading to a selection of one or more technologies as early as 1998 for the construction of a demonstration facility.

Despite congressional support for these programs, the administration's FY96 budget recommends reducing funding for the ALWR program to \$49.7 million, 14 percent lower than FY95 allocations, and termination of the Gas Turbine Modular Helium Reactor and Advanced Liquid Metal Reactor programs. Of \$192 million in the Office of Nuclear Energy's total request, \$49.7 million for ALWR research and

development is the sole support for the development of commercial nuclear energy options for future electricity generation.

We believe these program cuts and long-range plans by DOE to reduce funding for nuclear research and development activities run counter to the goals and objectives supported by Congress in the Energy Policy Act of 1992, and do serious damage to this country's ability to meet the long-term electricity needs of our population and economy. This subcommittee must take the first step to reaffirm Congress' commitment to maintain and advance nuclear energy in this country, and to assure that DOE's advanced nuclear technology program is progressing in a timely manner.

PREPARED STATEMENT OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Mr. Chairman and Members of the Subcommittee:

The American Society of Mechanical Engineers (ASME) is pleased to have this opportunity to submit testimony to you on the Department of Energy's FY 1996 budget request. Our Society is 115 years old and our current membership of 125,000 includes approximately 25,000 students of mechanical engineering. This testimony was prepared by a task force of the Energy Research and Energy Conversion Groups of ASME's Council on Engineering. These groups comprise eight technical divisions whose 18,000 members are engineers from industry, academia and government. This testimony represents the considered judgement of the task force, and is not necessarily a position of ASME as a whole.

In our view, energy issues are still front-burner issues. More than a quarter of ASME's 37 technical divisions are devoted to energy resources, conversion and research, as well as fluid power systems and heat transfer. We are concerned that the ongoing national security debate underway in the 104th Congress is limited to the nation's military agenda. We believe the nation's security is also dependent upon our energy and economic security. Therefore, in our view, decisions about national security should include these issues. Economic security without energy security cannot be achieved. That is why we are pleased to be submitting this testimony in order to discuss with you our thoughts and recommendations as to how to best apply limited federal R&D resources to assure U.S. energy security.

In 1992, the Congress passed, and President Bush signed into law, the Energy Policy Act (EPACT). This was the first time in more than a decade that the federal government formally acknowledged through authorizing legislation a national energy strategy. Groups within ASME responded by offering testimony in support of provisions of the law that call for the Department of Energy to develop five-year plans for the pursuit of R&D programs in several energy technology areas. Indeed, at the Department's request, last year we commented in a formal manner on two such plans prepared by the DOE in response to the EPACT. These were in the areas of advanced nuclear reactor research and renewable energy technologies. We would like to highlight the key findings of the ASME task forces that reviewed these documents.

Advanced Nuclear Reactor Research

A task force of ASME's Nuclear Engineering Division prepared a review of the DOE Draft Five-Year Plan for Advanced Reactor Activities in May 1994. The task force concluded that the elimination of government support for the technologies embodied in advanced reactors was contrary to the national goal of achieving energy independence and security. In particular, they held that termination of the actinide recycle program was inconsistent with the fact that the program was on the verge of demonstrating the viability of the procedure for disposing of high level nuclear waste. What better way to invest limited federal R&D dollars for advanced nuclear energy research than to support a fundamentally unique, yet

technically sound, long term research enterprise that could lead to a safe, efficient and economic procedure for processing the nation's nuclear waste? Clearly the disposition of nuclear waste remains a major impediment to the construction and deployment of nuclear electric energy production facilities in the U.S.

Renewable Energy Technologies

A task force of ASME's Energy Resources Group reviewed the DOE draft R&D multi-year plan for renewable energy technologies. The task force's review recommended that greater emphasis should be given to advanced concepts such as innovative solar power conversion processes and advanced energy conservation technologies that support demand side management. These are examples of research opportunities that were not addressed in the DOE program plan.

Refocusing research funding to develop innovative ideas, many of which reside at our universities, for utilizing renewable energy resources that are not yet available to the marketplace, would be a productive use of scarce federal funding for a long range renewable energy research program.

Engineering Research and Education

Finally, we would like to address the role of engineering research and engineering education in the overall process of maintaining and strengthening our U.S. energy and economic security. Engineering know-how is essential to converting the scientific results of the physical, chemical, mathematical and biological research funded within the Department of Energy into marketable products. The Administration's FY 1996 budget request for R&D within the DOE calls for an increase of \$488 million (in current dollars) over the FY 1995 budget estimate. This represents a real growth of 4.2% in constant dollars over last year. Yet, the support for energy R&D at our colleges and universities, where the seeds of new ideas and visions are nurtured, will actually decline by 1.5% in real terms. Clearly, some very difficult decisions will have to be made as the Congress weighs the need to maintain a strong federal support for good science and engineering against the need for reduced overall federal spending. We would urge that, as you deliberate the priorities in the Department's R&D budget proposals this year, every consideration be given to sustaining a strong educational component of our energy R&D mix.

Again, we thank the Chairman and the Subcommittee for providing ASME with this opportunity to participate in this important debate. As energy technology development is central to the field of mechanical engineering, we are vitally concerned with the programs and budgets of the DOE. We offer our assistance in any way possible to the deliberations of this Subcommittee.

PREPARED STATEMENT OF LIZA K. BOWLES, PRESIDENT, NAHB RESEARCH CENTER

Mr. Chairman and Members of the Subcommittee:

The NAHB Research Center is a wholly-owned, not-for-profit subsidiary of the National Association of Home Builders. NAHB established the Research Center in 1964. Our function is to keep U.S. home building closely tied to new technology and changing needs.

In my testimony, I would like to call particular attention to the technology called photovoltaics (PV), and its potential value for supplying electricity to American homes.

Photovoltaics

Photovoltaics is the conversion of sunlight into electricity. It is one of the most environmentally safe and desirable forms of renewable energy. With funding from the U.S. Department of Energy (DOE), the NAHB Research Center is conducting a program to foster the development of photovoltaic products and systems that can be integrated into the design of homes, and to help bring them into the marketplace. Energy savings are potentially immense.

We believe that, with adequate support from Congress and DOE, photovoltaics can enter the mainstream of home building more rapidly than most people realize. We strongly urge that this be achieved.

The Cost of PV

A basic obstacle to home PV has been cost. But costs are coming down. Photovoltaic modules that sold for \$50 per rated watt of peak generating capacity in 1970 dollars, sell for \$5 to \$7 per watt today. Current costs for electricity from PV run from 25 cents to 50 cents per kilowatt hour, but new products may be able to bring the cost down to 16 cents/kwh, or even as low as 12 cents/kwh. Electricity from local utility grids typically costs 5 cents/kwh hour today, and may well increase. The gap is closing.

Feeding Power Back Into the Utility Grid

One result of home PV use would be an increase in distributed power generation, relieving the pressure to construct capital-intensive and environmentally controversial central generating facilities. At some hours of the day, home PV systems could produce surplus electricity, which could be fed back into the power grid. This would reduce both the utility's load and the home owner's electric bills.

Crystalline Silicon Units at The Resource Conservation House

The Research Center builds research and demonstration homes in the NAHB Research Home Park, which is located near our suburban Washington headquarters. In 1992, we built a house in the Park which we called the Resource Conservation House. The house employs a PV array utilizing rigid crystalline silicon units, that is mounted on the back of the housing of a backyard swing. This array can generate enough electricity to operate external lights around the house, and to provide emergency lighting in the home.

The Resource Conservation House received widespread coverage in newspapers, magazines, and TV, and the PV array created special interest and attention. The House and the publicity that it attracted helped to bring about a major advance in public interest in the technology.

Crystalline Silicon and Amorphous Silicon

Until recently, PV technology has been based on the use of crystalline silicon of the type used in the Resource Conservation House, as the light-to-energy conversion material. With current technology, this material can convert more than 12 percent of the sunlight that it receives into electricity.

An alternative approach that is being studied with increasing interest utilizes silicon in thin films. Its conversion efficiency is lower than that of crystalline silicon, but it offers the potential of lower mass production cost, and is often seen as the best option for cost-effective home photovoltaics.

The conversion of amorphous silicon has typically been less than 6 percent. However, prototype technologies utilizing amorphous silicon has been able to convert over 10 percent of sunlight to electricity.

An addition to its economic advantages, we have been interested in amorphous silicon for PV applications because it can be incorporated into flexible instead of rigid substrates. Panels of PV units can be made in the form of "shingles," and can be designed to look like a standard roofing product. DOE estimates that such "shingles" could supply all the daytime electric power needs of a south-facing home. That poses fascinating challenges, and we are investigating them fully.

Amorphous Silicon Roof Units on A Steel House Frame

In December 1994, with DOE support and funding, we constructed the steel frame for a house, right in our parking lot. We added plywood sheathing to a portion of the roof. Onto this sheathing we attached a section of house "shingles" containing amorphous silicon. Our purposes in making this installation were :

- to study issues relating to the design of the product;
- to develop installation techniques that can be used by roofers; and
- to study the material's performance in an actual roofing application.

The 21st Century Townhouses Project

We are now building four research townhouses in the Research Home Park, called the 21st Century Townhouses. These houses will feature products and systems that reflect two themes - alternatives to lumber in home construction, and advanced energy efficiency.

All four of the townhouses will have steel roofs. Plans call for the installation of a full array of amorphous silicon "shingles" on the south-facing side of one of the roofs. This will constitute the first whole-roof application of amorphous silicon shingles, and will bring this important technology a major step closer to the marketplace.

Building-Integrated Photovoltaics

Amorphous silicon "shingles" offer one approach to incorporating PV into house design, but a greater variety of approaches must be developed. For example, many houses do not have a south-facing roof, which is the orientation needed for best results from PV "shingles." Additional architectural and technical solutions are required.

The Research Center is participating in a program sponsored by DOE to investigate the integration of PV into homes and light-frame buildings. We are working with builders and utilities to demonstrate simple, cost-effective designs and construction methods for creating building-integrated PV. The program involves:

- identifying major barriers to the use of PV systems;
- identifying PV applications and products that are best suited to building integration and the utilities' demand loads;
- helping to develop strategies to overcome obstacles to PV market penetration;
- assisting in developing standards, specification, and procedures for successful PV applications;
- preparing guidelines and manuals for building-integrated PV; and

- communicating the benefits of PV to the home building industry and to home buyers.

Congress, DOE and Photovoltaics

We strongly encourage Congress and DOE to continue their support of the program to improve and commercialize photovoltaics. The effort constitutes an investment in America's energy future that can produce an immense return. The National Association of Home Builders and the NAHB Research Center are pleased to continue the joint program with DOE and Congress, to move this technology from the fringes of home building into the mainstream of the marketplace.

PREPARED STATEMENT OF KRIS W. KIMEL, PRESIDENT, KENTUCKY SCIENCE AND TECHNOLOGY COUNCIL, INC.

Mr. Chairman:

My name is Kris W. Kimel. I am President of the Kentucky Science & Technology Council, Inc. I am submitting testimony to this Subcommittee in support of the Experimental Program to Stimulate Competitive Research (EPSCoR). On behalf of the Coalition of the nineteen states¹ that participate in EPSCoR, we urge the Subcommittee to continue its strong support of the EPSCoR program at the Department of Energy and to provide \$15.05 million for the DOE EPSCoR program in FY 1996.

The primary mission of EPSCoR is to foster systemic and sustainable change in the capacities of universities in EPSCoR states to support nationally competitive research programs. Secondary objectives are to broaden geographic distribution of merit-reviewed research awards and access to quality education in science and engineering. In practice, EPSCoR also fosters enhanced interaction and cooperation in research and technology development among universities, state government, and industry in the participating EPSCoR states.

The National Science Foundation established the EPSCoR program in 1979 in response to Congressional concerns about the concentration of federal support for university research at a relatively small number of institutions located in a handful of states. Congress has expanded EPSCoR beyond NSF and programs are now underway or in the process of being established in the Departments of Agriculture, Energy and Defense, the Environmental Protection Agency, the National Aeronautics and Space Administration, and the National Institutes of Health.

Kentucky EPSCoR is a part of the Kentucky Science and Technology Council (KSTC), a private, non-profit corporation involved in major statewide projects in science and mathematics education, industrial modernization, including coordinating the implementation of the Kentucky Technology Service part of the NIST supported Manufacturing Extension Partnership, technology transfer, and telecommunications. Kentucky EPSCoR conducts statewide scientific competitions to identify new research areas which are likely to have significant impact on education and economic development in the State.

Since Kentucky became part of the EPSCoR program in 1985, we have received over \$14.5 million in planning, implementation, and traineeship grants from five Federal EPSCoR Programs (Defense, Energy, EPA, NASA and NSF). The Commonwealth of Kentucky has committed over \$7.8 million in new funds toward these programs, with \$80,000 provided by private sector sources, and additional funds contributed by the participating colleges and universities.

The EPSCoR program is intended to broaden participation in the federally-funded research initiatives that ensure this country's technological and scientific leadership. The future ability of the United States to meet the

¹ Alabama, Arkansas, Idaho, Kansas, Kentucky, Louisiana, Maine, Mississippi, Montana, Nebraska, Nevada, North Dakota, Oklahoma, Puerto Rico, South Carolina, South Dakota, Vermont, West Virginia, and Wyoming

economic and technology challenges of the next century depends, in large part, on building a truly national scientific and technical research infrastructure. An economic analysis of the Kentucky EPSCoR program showed that it has generated a 13% return on the State's investment in the program. Scientists and engineers supported by the first NSF EPSCoR program have more than tripled the amount of extramural funding received in the last five years.

I would like to share several important observations about the EPSCoR program in Kentucky:

- * Seed funding for young faculty just starting their scientific careers is one of the best investments made by the EPSCoR program.
- * A major consequence of the focus on competitiveness has been the development of infrastructure (such as laboratory equipment and new faculty positions) and collaboration among higher education institutions, which have made a marked change in the research environment in our state.
- * A second consequence has been an increase in the quality of education in science, engineering and mathematics, as well as in the training of hundreds of faculty, students, and staff.

With funding from NSF, Kentucky EPSCoR supports a "visiting scholars program" for faculty at our six regional universities and seven private colleges and universities. It is closely connected with plans for the Advanced Science and Technology Commercialization Center (ASTeCC). And it has provided the seed-funding for our Center for Computational Sciences, now a world-class computer research facility.

The NSF program is an excellent base on which to build, but there is a demonstrable need for such a program in the Energy Department. Led by this Subcommittee, Congress has endorsed the establishment of an EPSCoR program within the Energy Department. The objectives of DOE's EPSCoR program are "to enhance the competitiveness of the peer-review process within academic institutions" and "to increase the probability of long-term growth of competitive funding to investigators at institutions" in the EPSCoR states. This is a researched based, technology development program. It is authorized under section 2203 of The Energy Policy Act of 1992. This authorization calls for the program to be operated by the Director of the Office of Energy Research (OER), but in practice we have been pushed down into the education division, as OER has never taken sufficient interest in managing the program.

I am pleased to report that last year Kentucky was one of four states to successfully compete for a DOE EPSCoR implementation grant. Our two-year award of \$1.25 million includes both energy research and human development components. The DOE grant provides support for four research clusters in fossil energy, environmental research, high energy and nuclear physics, and materials research, as well as several projects which will impact elementary, secondary, and undergraduate education. The DOE funds are leveraged by this partnership with the Commonwealth of Kentucky and its universities.

Research and education personnel at Berea College, Eastern Kentucky University, Murray State University, Northern Kentucky University, Pikeville College, the University of Kentucky, the University of Louisville, Western Kentucky University, the Kentucky Science and Technology Council, and state government have formulated a statewide program of energy-related research and education/human resources development. The program includes the participation of and interaction with national DOE laboratories and energy industries. For example, the Kentucky DOE EPSCoR project utilizes equipment and collaborates with scientists at DOE's national laboratories in Oak Ridge Tennessee (ORNL) and Newport News (CEBAF).

The Kentucky DOE EPSCoR program targets specific research areas in which it will endeavor to become nationally competitive. Experienced faculty are

partnering with industry, with junior faculty and graduate students to build upon their training and experiences. The research will cover some of Kentucky's strengths and needs in fossil energy and environmental research, and expand its expertise in high energy and nuclear physics and in materials research.

The Kentucky EPSCoR program is breaking new ground by bringing together scientists and academics at our universities and colleges. The DOE-EPSCoR program holds great promise for Kentucky's research universities as well as other institutions of higher education in the State.

The state-based nature of EPSCoR is directly responsive to concerns about the concentration of research in a small number of institutions. Other advantages include encouraging cooperative efforts among universities in states with limited resources, developing a broad base of research scientists with expertise related to an agency's mission and providing a critical mass around which a state's scientific enterprise can develop. Besides fostering competition and geographical equity in the distribution of federal research funds, participating states find real value in the EPSCoR program in an international economy driven by technology.

The DOE EPSCoR program is a vital component for enhancing the quality of education and research potential in EPSCoR states. Strong education and research programs in science and engineering provide economic development and expanded opportunities for all our citizens.

In closing, Mr. Chairman and Members of the Subcommittee, we urge FY 1996 funding for the program of \$15.05 million, the level recommended in DOE's implementation plan. It is an exciting program with great potential benefit for states such as Kentucky, Mississippi, Louisiana, Alabama, Arkansas, Nevada, Montana, South Carolina and West Virginia. It is a program that will produce solid results in education and scientific research for the participating states and the Nation as a whole. We hope you will join us in continuing to support the Experimental Program to Stimulate Competitive Research at the Department of Energy.

PREPARED STATEMENT OF THE AMERICAN PUBLIC POWER ASSOCIATION

The American Public Power Association (APPA), the national service organization representing more than 1,750 local, publicly owned, not-for-profit electric utilities throughout the country, submits this statement to the House Appropriations Subcommittee on Energy and Water concerning FY 96 appropriations.

EMF Research

In the Energy Policy Act of 1992, Congress authorized a national Electric and Magnetic Field (EMF) Research and Public Information Dissemination program, better known as the "EMF RAPID" program. The goals of the five-year, \$65 million effort (50 percent of which is to come from non-federal sources) are to determine the health effects of EMF, to demonstrate EMF mitigation technologies, and to disseminate information to the public. The program is in its third year.

This program is a perfect response to those who criticize traditional federal regulatory approaches to perceived problems. Instead of government mandating inflexible laws and regulations, this program promotes a public/private partnership toward obtaining solid, scientific research on EMF risks, if any.

APPA urges the Committee in FY 1996 to appropriate \$6 million for the "core" DOE program and to provide \$6 million for the EMF RAPID program - which will be matched by non-federal contributions.

Background

Over the years, many Americans have expressed concerns about the possible health effects from exposure to electric and magnetic fields that surround an electric current-carrying conductor.

Some studies have indicated that there might be a link between EMF exposure and cancer or other adverse health effects, while many other studies have concluded that there is no association between EMF and adverse health effects.

APPA historically has supported additional research in an effort to find answers based in science, not speculation. APPA felt this goal could best be accomplished through a more aggressive federally directed research program jointly funded with federal and nonfederal dollars.

In the early 1990s, industry groups went to Capitol Hill and expressed their desire to expand and accelerate EMF research efforts. The federal government had been involved in various EMF research projects, but most of the funding was dispersed among the various federal agencies to do small individual EMF research projects (*i.e.*, DOE, EPA, DOD and OSHA all had EMF research programs).

Congressman George Brown (D-CA), then-Chairman of the House Science, Space and Technology Committee, agreed with industry that there needed to be a more aggressive, coordinated federal research effort that would give the public information and that would ensure credibility behind efforts to assess EMF health effects.

Congressman Brown succeeded in incorporating language in the Energy Policy Act of 1992, establishing the EMF RAPID program, a "public/private" partnership, whereby industry (including computer manufacturers, appliance manufacturers, electric utilities, etc.) would join together in support of a comprehensive program that would pool federal and non-federal funds, coordinate research efforts, avoid duplication, and enjoy public support. The legislation directed DOE to coordinate the program, with the National Institute of Environmental Health Sciences (NIEHS/NIH) doing a significant portion of the health-based research. Both agencies would provide information to the public. DOE was directed to solicit 50% of the funding from non-federal sources.

DOE has served as the coordinator of the EMF RAPID program, with NIEHS doing most of the health-based research. However, DOE has continued to fund biological research as well as develop an experimentally validated risk assessment program. Congress consistently has funded \$6 million annually for the core risk assessment effort at DOE. Many argue that the core DOE program provides structure, while the new EMF RAPID program provides the impetus. The programs complement each other. DOE has indicated that the objective of the risk assessment work is to provide the public and policy makers with reasonable estimates on the degree to which, if any, EMF poses a health threat. APPA supports the core DOE program and therefore supports the \$6 million funding level, which is included in the Administration's FY 1996 budget request.

Separate from the core DOE program, APPA urges the Committee to support the full \$65 million, five-year, cost shared EMF RAPID program. The electric utility industry has committed \$21.6 million and the National Electrical Manufacturers Association another \$2 million to the five-year \$65 million program. Public power systems have pledged to provide \$3.2 million over five years to the program, providing their proportionate share to match each year's federal appropriations. APPA and its sister organizations have testified twice before the EMF RAPID Program's Advisory Board outlining our funding commitment. APPA has given DOE our share of non-federal funds in 1994, collecting contributions from 856 public power utilities, and is in the process of collecting 1995 funds.

Renewable Energy Resources

APPA fully supports the Administration's FY 96 budget request of \$326.425 million for DOE's renewable energy programs, and urges Congress to protect the budget request for FY 96. This amount should be considered the minimum needed to ensure that renewable energy technologies become part of the full range of resource options available to our nation's electric utilities. In this era of increased competition in the electricity marketplace, it becomes increasingly important to support the continued development and commercialization of renewable energy resources. A budget request that is grounded upon working in partnership with the market signals a new way of doing business with DOE – an objective that this Committee and Congress should fully support.

Renewable Energy Production Incentive Program

DOE is about to produce final rules implementing the Renewable Energy Production Incentive Program (REPI). Authorized by the Energy Policy Act of 1992, REPI will be a DOE administered program that will make payments to publicly and cooperatively owned electric utilities at the rate of 1.5 cents/kWh for new solar, wind, certain geothermal, and biomass electric projects. These payments, subject to annual appropriations, were designed to complement similar tax credits available only to private entities. A 1993 APPA survey of our member utilities indicated that 60 utilities in 32 states are interested in participating in this new program.

The Administration is requesting \$3 million for FY 96 to begin the program. Congress should appropriate no less than the \$3 million for REPI. At this level and early into the program, eligible utilities can take advantage of this important renewable program. Production payments to utilities are an excellent market-based method to spur greater interest in this energy arena. However, stable and predictable funding is required if the production payment is to achieve its purpose.

Support Market-Pull Commercialization Collaboratives

While electric utilities will be taking a more active role in integrated resource planning and working with customers to install energy efficient technologies, federal support of such efforts remains crucial. No single player – be it the suppliers, the buyers, or the government – can assume the costs and risks of successful commercialization. Even with an effective collaboration solely between suppliers and the market as represented by utilities, there likely will remain near-term cost gaps. Government support to close the near-term commercialization gap can be pivotal. Limited government support is most effectively earmarked to those critical areas that exceed the risk thresholds of the markets and suppliers. Such support lowers cost hurdles, thereby stimulating sustainable markets that eventually will allow government support to be reduced to zero. Sometimes the support can be in the form of cost-sharing of hardware demonstrations; sometimes the support can be in the form of facilitating the startup of a market-led collaborative effort. APPA cautions that DOE must become a reliable, multi-year partner to the collaborative participants. This requires both stable annual appropriations a commitment to eliminating contracting red tape and delays at the DOE program level.

Advanced Hydropower Turbine

APPA supports DOE partnerships to accelerate research and development for a new generation of hydro turbines. The advanced turbine cost-share program arranged between DOE and the National Hydropower Association, for example, represents a laudable effort to design, develop and test a turbine that is superior in its ability to protect fish and aquatic habitat, while operating efficiently over wide ranging flow levels. Because hydropower is an important component of public power's energy mix, providing an emissions-free, abundant, low-cost renewable energy supply, we encourage the Committee to fund the Advanced Hydropower Turbine program at \$7.5 million over the next two fiscal years. At this level, important progress will be made toward completing the conceptual design and testing of models.

Power Marketing Administrations

Once again, the Administration is proposing the sale of federal power marketing administrations (PMAs) over the next several years in an effort to show a short-term influx of cash to the Treasury at the expense of long-term revenues generated by these agencies. APPA opposes the Administration's proposal and commends the Committee for its continued insistence that Administration plans to divest any of the PMAs or to alter repayment policies must be implemented through legislation, and not through executive order. We urge the Committee to continue appropriating full funding for normal operations of the PMAs.

In addition, because all operational costs of the PMAs are paid by federal power customers through rates collected from the sale of power generated at federal dams, APPA urges the Committee to oppose any across-the-board budget or personnel cuts that would affect these agencies. The PMAs have contractual obligations to provide reliable power to their customers. To fulfill these obligations, they must have the resources – including the personnel – required to accomplish the job safely and reliably. It has come to our attention that DOE has frozen all new Senior Executive Service appointments. The Administrator positions at both Southwestern Power Administration and Southeastern Power Administration have been vacant for a number of months, and it appears this department-wide freeze may be forcing these PMAs to continue functioning with acting Administrators. The failure to fill these positions has had a negative

impact on employee morale. APPA urges the Committee to exempt the PMAs from any government-wide or department-wide, arbitrary personnel ceilings or reductions.

Corps of Engineers and Bureau of Reclamation

The power marketed by the PMAs is generated at about 130 multipurpose federal dams operated by the Corps of Engineers and the Bureau of Reclamation. Under the current operational scheme, it is up to the Corps and the Bureau to budget for operation, maintenance, major rehabilitation, upgrading and replacement of the equipment at the powerhouses. Thus, although the PMAs are contractually responsible for delivery of power to their customers, their ability to meet these obligations is constrained by the reliability of hydropower units operated by separate agencies in different cabinet-level departments. Unfortunately, because the power function must compete with numerous other responsibilities assigned to the Corps and the Bureau – *i.e.*, water supply, irrigation, flood control, navigation, recreation, fish and wildlife conservation, salinity control, etc. – maintenance of the generation facilities does not always enjoy the same priority as it does at the PMAs.

Ongoing maintenance problems at the powerplant of the Corps' Harry S. Truman project in Missouri illustrate this point. Southwestern Power Administration (SwPA) has allocated the capacity and energy from this project and is obligated to deliver that power on demand from its customers, whether the project is operational or not. Since this project was completed, it seems like the units are out of service more often than they are available, primarily due to design deficiencies. The Corps believes it has solved the design problems, and has completed substantial alterations to two of the six units at the project. These units have provided reliable operation since they were returned to service. But before the repairs could be effected to the other units, problems were encountered with the overhead crane that is required to pull the units from their service bays for the repairs.

If the project were maintained by SwPA or any electric utility, repair of the crane would have received a high priority. Unfortunately, the Kansas City District of the Corps decided other projects had a different priorities. The crane has now been out of service for more than a year. During this period, four of the six generators have remained unavailable, and SwPA has had to purchase power to meet its contractual obligations to its customers.

To its credit, the Corps has finally sought funding for major rehabilitation of the powerplants at the Jim Woodruff (FL and GA), Hartwell (GA and SC) and Thurmond (GA and SC) projects that provide power to the Southeastern Power Administration (SEPA). APPA supports these major rehabilitation projects and urges the Committee to appropriate the \$4.2 million sought for these repairs. However, the Committee is aware that these projects have been on the verge of failure for several years, because SEPA customers have testified to that effect before the Committee and repeatedly urged the Corps to seek emergency funding for these projects. In fact, if APPA and SEPA customers had not focused Congressional attention on the impending failure of these units, it is unlikely that the Corps would have sought the funding in this year's budget.

Contrast these situations with the Alaska Power Administration (APA), which does not rely on the Corps or Bureau for operation and maintenance of its projects, instead performing these functions itself. When APA realized that the generators at the Eklutna project were reaching the end of their useful lives, it sought an appropriation to rewind the generators last year. The Committee honored that request, and the project is well underway. There was never any danger of immediate failure, and the reliability of the project was not jeopardized.

Perhaps it is time for Congress to consider turning over operation and maintenance of the powerhouses at Corps and Bureau dams to organizations that have a real interest in ensuring their continued reliable operations.

Thank you for considering our requests for funding.

PREPARED STATEMENT OF WILLIAM R. MARTIN, CHAIRMAN, NUCLEAR ENGINEERING DEPARTMENT HEADS ORGANIZATION

Chairman Myers and Members of the Committee:

This testimony is submitted by William R. Martin, Associate Dean of the College of Engineering, University of Michigan and Chairman, Nuclear Engineering Department Heads Organization (NEDHO). NEDHO is made up of the heads of 38 Nuclear Engineering

Departments or Programs from universities in 29 different states. On behalf of NEDHO, I wish to thank this subcommittee for its past vision and leadership.

BRIEF SUMMARY OF REQUEST

I am here to present testimony related to the future of nuclear engineering education research, specifically as it relates to education of the future engineers and scientists who will serve in industry and government in this, and closely aligned fields. The Department of Energy's 1996 budget includes \$6,130,000 for the following activities: reactor fuel, reactor sharing, reactor instrumentation, utility matching grants and nuclear engineering (NE) and health physics (HP) fellowships. We recommend that the committee allocate \$10,100,000 in FY96 for support to cover critical needs in nuclear engineering education and research, including maintaining a strong and viable research reactor capability in the nation. Approximately \$5,300,000 represents an investment in nuclear engineering education through research, matching grants with utilities and fellowships, and another \$4,800,000 represents support for reactor fuel, reactor sharing and reactor instrumentation upgrades. We also recommend that a single federal agency, the Office of Nuclear Energy of the Department of Energy (DOE), be designated as the lead agency to oversee the needs of graduate education and research in nuclear engineering at the nation's universities. This testimony is in support of the nuclear engineering education research and fellowship portion of the program.

BACKGROUND

NEDHO consists of approximately 38 departments and programs in universities, with their principal discipline being nuclear engineering, which involves the design and operation of nuclear reactors and the application of radiation and nuclear techniques to science and engineering. Most of our departments are very broad-based, including disciplines such as health and medical physics, radiation detection and measurement, thermal/hydraulics, materials science related to nuclear processes, nuclear fusion and plasma physics, and the design and performance of fission reactors for the production of electricity. We educate not only the engineers that operate the nuclear power plants, but professionals such as the health physicists who assist with radioactive waste disposal and environmental restoration activities, or the medical physicists involved in cancer treatment planning, and the materials scientists who develop and test new materials for industry and research, using radiation-based techniques such as ion implantation.

FEDERAL SUPPORT FOR NUCLEAR ENGINEERING EDUCATION RESEARCH

The federal government has generally looked to the DOE to provide the guidance and support needed for the educational and research activities in nuclear engineering at the universities. The National Science Foundation (NSF) has traditionally deferred support for academic nuclear engineering programs to the DOE. For example, faculty members in other engineering or science disciplines can submit proposals to the NSF (or DOD) for funding of research and educational programs, but nuclear engineering faculty will be discouraged from doing this, with DOE being cited as the appropriate federal agency to support such requests. Prior to this year, the DOE had never embraced this concept and had not provided within its budget, sufficient resources to support these programs at an adequate level. Fortunately, Congress has had the wisdom to provide specifically for such support at a level of \$10,100,000 from FY88 through FY93. This funding was reduced to \$4,200,000 in FY94 and FY95 when Congress ceased support of the program and the DOE failed to incorporate the program into its budget.

The Congressionally-mandated programs had provided financial support for a number of activities in nuclear engineering education research over this six year period, specifically:

- Research grants
- Fellowships for promising U.S.-citizen M.S. and Ph.D. students
- Industry matching funds initiative that leverages funds from nuclear electric utilities
- Support of operations and modifications of university research reactors.

The following list describes these activities in more detail, except for those related to the research reactors, which are covered in separate testimony from the national organization of Test, Research, and Training Reactors (TRTR):

Research Grants. The research grant program is the first component of the nuclear engineering education program. This program is extremely important because it provides opportunities for faculty and students to explore long-term, innovative initiatives that could have a great impact in applied nuclear science and technology. Projects are performed over two to three years allowing doctoral students the time necessary to complete their research and dissertation as part of the project. In the six years FY88-FY93, over 800 proposals were submitted by faculty involved in nuclear engineering. DOE review panels recommended that 250 of these be supported because of their relevance to the national needs, or their promise of possible major new technological

development. Due to the limited funds, only 80 of these recommended grants were actually funded, representing a three-fold shortfall in funds to support the proposals that could significantly enhance the nation's future competitive position in the world markets. This acceptance rate of approximately 10% is a factor of three less than the NSF acceptance rate of close to 30%. Thus, this program was among the most competitive in the nation and resulted in the highest quality research. The following list describes just a few of these projects:

- (a) advanced processes for high level waste disposal (Purdue and Louisiana State),
- (b) advanced lasers utilizing neutrons from nuclear reactors (Illinois and Missouri),
- (c) artificial intelligence systems for enhanced power plant safety and performance (MIT, Ohio State, Penn State, Tennessee, and Texas A&M),
- (d) radiation damage to pressure vessel steels and core components (California-Santa Barbara, Carnegie-Mellon, Illinois, and Michigan), and
- (e) medical uses of neutrons or lasers to cure cancer (Missouri and Georgia Tech).

I estimate that about 250 graduate students, most of whom eventually wrote their theses on the particular research project, were supported in the six years the program was in place. All projects were canceled and the students were left without support when the program was left unfunded in FY94. The loss of this program is likely to have serious consequences when considering the human resource needs by government and industry for nuclear engineering graduates. We recommend reinstatement of this research grant program at the previous level (FY88-FY93) of \$3,500,000.

Graduate Fellowships. A second component of the nuclear engineering education program relates to graduate fellowships. These four year student stipends attract exceptionally high quality U.S. citizens to pursue Ph.D. programs. The demand for such graduates exceeds the current supply because of the diversity of areas in which they perform research, from studies of materials and radiation damage to advanced controls and artificial intelligence, to improved understanding of thermal-hydraulic behavior, to the design of radiation detection methods for the protection of personnel. Without the long term financial support provided by fellowships, many of the most capable B.S. graduates will bypass graduate school for high paying industry positions, and their participation in the long-term research and technology developments needed to maintain U.S. competitiveness will be lost.

The supply of highly trained Ph.D.s is becoming more important in a world where nuclear power is gaining increased acceptance in poorer nations where the access to specialized training in reactor safety and radiation protection is limited. It will increasingly fall to graduates of U.S. universities to provide the leadership in the safe, economic and competitive production of electricity by nuclear power around the globe. A shortage of manpower will seriously curtail our ability to meet this challenge. About 40 graduate fellowships, typically covering four years of support for doctoral students, are required to meet the recommendations of the National Academy of Sciences (NAS) to encourage talented U.S. students to enter this field [1]. The FY96 budget request supports these graduate fellowships at a level of \$1,000,000 which is the level necessary to maintain the supply of highly trained Ph.D.s for industry.

Industry Matching Funds. The third element of the nuclear engineering education program is the Matching grants initiative. This Industry/DOE program provides up to \$50,000 per year from industry, matched by DOE, to a university to support nuclear engineering research and education. This innovative and unprecedented program was initiated by nuclear electric utilities who were concerned that academic departments in nuclear engineering would not be able to maintain adequate academic programs to provide the necessary manpower to keep nuclear power as a viable option for providing electricity into the next century. This program is instrumental in promoting stronger ties between nuclear engineering departments and the nuclear industry, and will increase the efficiency in the use of DOE funding through matching money. This initiative also provides enormous flexibility for related activities such as faculty recruitment, which is a costly expense for a department. The program originally included industry grants to 16 departments, totaling about \$1M each from the utilities and the DOE. The program was fully funded in the first year, but the DOE contribution was reduced to \$0.5M in years 2 and 3. The utilities have continued to honor their full obligation in all three years. We recommend reinstatement of funding at \$800,000 in the FY96 budget in order to meet the objectives of the Matching grants program.

RATIONALE FOR FEDERAL SUPPORT

Nuclear engineering education requires the use of expensive equipment, and in addition must compete for faculty and staff with national laboratories and industries that seek experts in these fields. The federal government has long recognized the need for federal support of engineering education, since advances in science and technology lead to substantial gains in productivity and international competitiveness, and federal funding is a critical component in this arena. Such support is primarily provided by the NSF for most technical disciplines. An exception has been nuclear engineering, which has always been handled by the DOE and its predecessor agencies. As emphasized in two reports [1,2] of the National Academy of Sciences (NAS), this federal support is necessary if this nation is to maintain nuclear energy as a viable source of electricity in the next century. The academic programs which provide the human resource base for nuclear power technology have a critical need for such support in order to attract the best graduate students and faculty to work in this field.

Nuclear engineering programs are unique in their blend of engineering and science, and it is unlikely that other disciplines can provide the specialized training and curriculum that characterizes nuclear engineering. [1] It is important that the DOE provide for this relatively modest program in its budget in order to prevent the further decline of nuclear engineering programs and research reactors, thus jeopardizing the goal of preserving the nuclear energy option for the 21st century. Furthermore, we note that the influence of the U.S. in the world nuclear markets has declined substantially over the last decade, with other nations now supplying a significant fraction of the nuclear products and services used in the U.S. A case in point is that for the last several years the U.S. has had no domestic source of the important Molybdenum/Tc-99 radioisotopes shipped weekly to 4000 hospitals in the nation. To avoid significant further erosion of our domestic capability, and of our export capability, the educational base needs to be strengthened. It is worthy of note that the nuclear electric utilities have recognized the real needs of the industry with their matching grant initiative.

NEED TO MAINTAIN THE NUCLEAR POWER OPTION

We are vitally concerned about the future of this nation, and of the world, without nuclear-generated electricity. On a per atom basis, nuclear energy represents a 20,000,000 fold gain compared to fossil fuel combustion, and a similar million-fold drop in the weight and volume of waste products compared to fossil energy. To not develop nuclear power to its fullest economical extent is to deny civilization a long-term, viable and environmentally benign energy source.

Failure to support these modest programs will jeopardize the goal of maintaining nuclear power as a viable energy option for this nation, and of maintaining our expertise, influence, and competitiveness in the world markets into the next century. A consequence which could be especially damaging to our nation and planet, environmentally and economically, is the tripling of the world's electricity capacity predicted in the next 50 years. At this point in time, nuclear generation of electricity appears to be the only viable, environmentally benign option available.

If these educational programs are not maintained, many of our brightest students in science and engineering will be deterred from entering this field, since there will be no financial support or interesting research projects in this field to work on. Such students are needed for the safe operation of the current generation of nuclear power plants, and to maintain and develop the technical expertise for future uses of radiation science and technology in the broad fields covering power, health, medicine, and industrial applications of the atom. Absence of funding for this program will further exacerbate a manpower shortage for the nuclear industry that is projected for this decade and well into the next century. [1] For instance, the Institute of Nuclear Power Operations has predicted that in the next ten years, 30% of the current professionals in the field of nuclear power will be retiring. When and if this country decides that additional nuclear power is needed, there will no longer be the expertise or technology to provide it, except by foreign corporations, which stand to benefit substantially as the U.S. abandons its once-leading role in nuclear reactor technology.[3] The irony here is that U.S. light water technology, licensed to foreign countries, may be successfully marketed by these very countries as our nation abdicates its leadership role in developing and utilizing nuclear energy. Indeed, we may become purchasers of our own improved technology (once again!).

Another NAS report [4] contains several recommendations which address the need to maintain the nuclear option as a substitute for fossil fuels to mitigate greenhouse warming. However, it is recognized that current concerns (safety, economics, waste disposal) need to be addressed and alternative reactor concepts need to be examined. In particular, investments in advanced reactor research and development are strongly recommended. The research and educational programs that we are recommending are consistent with these recommendations, which, it should be emphasized, come from a panel of environmental experts with no ties to nuclear power. Currently, the nation has 110 operating nuclear power plants. It is imperative that these plants

continue to operate effectively for their design lifetimes and that this nation retain the capacity to replace them with newer plants if needed in the next century. These recommended programs will contribute to maintaining this capability.

CURRENT STATUS OF JOB OPENINGS

The 38 nuclear engineering departments or programs in our universities and colleges have an enrollment of approximately 3200 students, 1900 of whom are graduate students pursuing Masters or Ph.D. degrees. The career paths of the graduates over a recent 3-year period have been nominally as follows:

Nuclear Engineering	33%
Health Physics	10%
Medical Radiation Physics	8%
General Physics	2%
General Engineering	4%
Continued Schooling	39%
Other or Unknown	4%

Of those accepting position in nuclear engineering, about half of these were in the commercial nuclear power industry, and about half with the federal nuclear research and development establishment, primarily at the national laboratories. Of the latter, it appears that the majority involved environmental restoration activities. The health and medical physics areas have been a very rapidly growing employment field over the last decade, and continued growth is expected.

SUMMARY AND CONCLUSIONS

It is apparent that nuclear engineering represents a broad and diverse field, encompassing both education and research in a number of critical fields for this nation. It is important for the technological progress of our nation and for the safety of nuclear applications that the nuclear engineering discipline be maintained and adequately supported.

We recommend the continuation of the DOE program with reprogramming of \$4,000,000 to reinstate the nuclear engineering education program in the Office of Nuclear Energy budget. These programs are critical to preserving nuclear power as a viable alternative source of electricity in the next century, as noted by several NAS reports.

We also support the Office of Nuclear Energy as the proper office to which this program should continue to be assigned.

We thank the committee for the opportunity to present this testimony.

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PREPARED STATEMENT OF PHILLIP MICHAEL WRIGHT, PRESIDENT, GEOHERMAL ENERGY ASSOCIATION

Mr. Chairman and members of the Subcommittee, my name is Dr. Phillip Michael Wright, and I am President of the Geothermal Energy Association. I am speaking today on behalf of my Association, which is comprised of about 50 U.S. member companies that bring the benefits of clean, reliable geothermal energy to society.

I have the pleasure of reporting to you that our industry is beginning to achieve dramatic breakthroughs in marketing geothermal technology in a number of developing countries -- breakthroughs that will have a highly positive effect on the U.S. economy, trade balance, employment, and on the global environment. Last November, four U.S. geothermal companies signed agreements with the Government of Indonesia

for the development of 1,420 megawatts of geothermal electrical power generation in separate concession areas -- agreements that will lead to projects funded at about \$4 billion. In addition, \$500 million in project contracts have recently been signed in the Philippines for development of 300 megawatts of new geothermal power. The vibrant economies in these nations recognize the many benefits geothermal energy development can bring to them, and additional opportunity for further geothermal power development exists. In addition to these successes, another U.S. geothermal company has, within just the last few weeks, signed an agreement with the Government of Nicaragua to develop 105 megawatts of geothermal electrical power, an agreement worth about \$250 million. Also, an agreement for construction of a small, 5 megawatt, geothermal power plant was recently signed with the Caribbean nation of Dominica. *The total U.S. industry's commitment to development of geothermal electricity generation in emerging nations now stands at nearly 2,000 megawatts of new power, in addition to the 1,200 megawatts already operating as a result of projects in foreign countries by our industry.* To place these figures in perspective, the average U.S. nuclear plant produces about 950 megawatts, and serves the residential needs of 1,000,000 Americans. Because geothermal power plants operate with a high capacity factor (actual megawatt-hours of electricity produced per megawatt of installed capacity), this means that more actual energy will be brought into these economies than would be produced by virtually any other type of power plant.

These achievements by our industry have been made possible in part through the support of the Energy and Water Development Appropriations Subcommittee, and we are very grateful for this support. I know that sometimes people in government wonder whether or not Federal funds have a beneficial effect on our society and economy. The figures cited above provide measures of the results of the geothermal program. Clearly, the investment this committee has made in geothermal technology development has helped advance our industry in international competition, to the benefit of all Americans. It has been a wise investment.

I want to emphasize the important point that *these marketing successes in international competition are a direct result of the superior technology the U.S. geothermal industry has been developing in partnership and close cooperation with the Department of Energy.* Until recently, international markets were dominated by Italian and Japanese companies supported by their governments with low-interest financing, tied aid, and political intervention to win geothermal projects. Our competitors' successes in actually bringing power on line, however, have been quite limited. The high quality of our industry's goods and services, our proven track record of reliable power development in this country, and our superior business and financial know-how appear to be overcoming the unfair advantages our competitors have had. The potential for much more geothermal development in emerging nations is very good. Our industry wants to remain poised to take advantage of further opportunities as they arise.

A second important point I want to emphasize today is that *our industry's growth is not limited by geothermal resource availability. Rather, it is limited by inadequate technology.* Only the very highest grade geothermal resources can be economically used today. Development of the vast majority of geothermal resources is not possible because our power generation costs are higher than those for competing fossil fuels, especially natural gas. Our costs today range from 4 to 7 cents per kilowatt-hour at high-grade geothermal resource sites, whereas generation from natural gas costs 3 to 5 cents per kilowatt-hour. Geothermal generation costs at the much more plentiful lower-grade resource sites are absolutely unable to compete with natural-gas generation costs. *A core R&D program aimed at improving existing technology and developing new, advanced technology is critical to help us continue competing in the global energy marketplace.* There are well-funded R&D programs in Japan, Italy, England, Germany and France aimed at advancing their technology beyond our own. Continued and even accelerated efforts to improve U.S. technology are extremely important for the short-range and long-range survival of our industry. For this reason, my association strongly endorses and supports the geothermal R&D program in the Department of Energy.

The member companies of the Geothermal Energy Association respectfully request your Committee to resist cutting DOE's very important geothermal research effort, but instead to continue support during FY 1996 at the present level of \$37.8 million. We will match such an amount with a cost share of \$50 million from the geothermal industry. Industry's cost share has grown from \$8 million in FY 1993 to the \$50 million proposed for FY 1996. We understand your need to reduce federal spending to decrease our country's budget deficit, and applaud your efforts to do so. However, we would like to point out that *royalty and other production payments for geothermal-energy usage on Federal lands brings about \$30 million per year into the U.S. government, and nearly pays for the entire Federal geothermal R&D program.* With continued growth, our industry could generate royalties of \$100 million per year or more

within a decade, since the majority of the resource occurs on Federal lands. Furthermore, the geothermal R&D budget has *not* participated in the very rapid increases in the overall renewables budget during the last several years. Whereas the overall renewables budget in DOE increased from \$201.2 million to \$389.4 million between FY 1991 and FY 1995 (essentially doubling), the geothermal R&D budget increased only from \$29.9 million to \$37.2 million (only 24%). If cutbacks were to be uniformly applied to the renewables, the geothermal R&D budget would be totally devastated and most of the industry cost share would be lost. We urge you not to let this happen to an industry that is so important to America by clearly stating in legislation your support for geothermal energy development.

One other important recommendation for the geothermal R&D budget must be mentioned in this statement. A DOE facility known as the Energy Technology Engineering Center (ETEC) has been placed under the geothermal budget even though this center has no geothermal activities. Money to fund ETEC in the FY 1996 budget is proposed by the DOE to be taken from geothermal programs that are important to the Geothermal Energy Association. The geothermal industry feels strongly that, if the Department of Energy wants to keep ETEC open and operational, the funding should come from some other budget such as that for nuclear or fossil energy, both of which have recently had programs at the ETEC facility. The legitimate geothermal R&D programs slated to be displaced by the proposed ETEC funds are cost-shared by our industry, with substantial overall benefit to our country. *We strongly urge that the programs proposed by DOE to be curtailed in order to fund the ETEC facility should be reinstated and the ETEC facility should be maintained using a funding source other than the geothermal budget, one matched to ETEC's actual mission and capabilities.*

TECHNOLOGY NEEDS

Just two weeks ago, the Geothermal Energy Association held a one-day workshop, for industry representatives only, to discuss the DOE geothermal program and recommend priority research areas. We concluded that the DOE program should concentrate in three program areas to help us reduce costs -- drilling, earth sciences, and energy-conversion.

Drilling. Drilling is one of the most expensive activities in geothermal development. Because of the high temperatures and corrosive nature of geothermal fluids, geothermal drilling is much more difficult and expensive than conventional oil and gas drilling. Each well costs \$1 million to \$3 million, and an average geothermal field consists of 20 to 100 or more wells. Drilling costs account for one-third to one-half of the total costs for a geothermal project. Improvement in existing drilling techniques and development of new, advanced drilling techniques would significantly lower the cost of electricity generated from geothermal resources. The GEA estimates that drilling costs can be lowered by 10 - 20% in the short term (the next decade) through incremental improvements to existing technology, and by 30 - 50% through development of advanced techniques such as those proposed in DOE's National Advanced Drilling and Excavation Technologies program.

Earth Sciences. Improvements in subsurface exploration and remote-sensing techniques are badly needed to allow resources to be discovered and assessed better. Present techniques lead us to drill too many dry wells. Further, inadequate knowledge of the subsurface makes it impossible for us to mine the heat in the most efficient way and ensure the sustainability of production from geothermal resources. We need better geological, geochemical, and geophysical techniques, as well as improved methods of computer simulation of heat-extraction strategies from geothermal reservoirs. Lowering geothermal development costs by 10 - 20% is possible through more reliable earth science techniques. We also need large-scale field tests such as the injection experiment currently being conducted at The Geysers field in California. Water will be brought into the field for injection from the Lake County waste water treatment plant, which is looking for a means of disposal. We anticipate that this project will increase generation at The Geysers field by 70 megawatts or more. The Federal investment will be about \$8 million over several years, and the total project cost will be about \$40 million.

Energy Conversion. The efficiency in conversion of geothermal steam into electricity in the power plant directly affects the cost of power generation. During the past decade, the efficiency of dry- and flash-steam geothermal power plants was improved by 25%. Power plants installed at The Geysers geothermal field in California during the 1960s required 20 lbs of steam to

produce 1 kilowatt-hour of electricity. The newest plants at The Geysers, installed in the mid and late 1980s, require only 14.5 lbs of steam to produce that same kilowatt-hour of electricity. The GEA believes that geothermal power-plant efficiency can be improved at least 25% more over the next decade with a modest investment in R&D.

Our recommended R&D program is a very specific program, focussed in only three technical areas and designed to meet the needs of the industry in the most cost-effective way possible. We are working directly with the DOE to make them aware of these recommendations. We also want to mention our support for the geothermal heat pump initiative in the DOE, which is not an R&D program but which will lead to the installation of energy-efficient geothermal heat pumps throughout the country.

INDUSTRY STATUS

The geothermal industry is comprised of some 50, mostly small companies headquartered in various states, including California, Nebraska, Nevada, Florida, Maryland, Utah, Hawaii, and Oregon. Direct employment is about 10,000 people in the U.S., and our indirect effect is a minimum of 20,000 other jobs. We generate a total of 2,280 megawatts of geothermal power, producing 17 billion kilowatt-hours/year, in four states -- Hawaii, California, Nevada, and Utah. States having excellent potential for near-term development of geothermal power include New Mexico, Arizona, Oregon, Washington, Idaho, and Alaska. Geothermal energy is the second largest grid-connected renewable electricity source, after hydropower. We generate 17 times more power than solar energy and 7 times more than wind energy. The power we produce in the United States displaces the emissions of 22 million tons of carbon dioxide, 200,000 tons of sulfur dioxide, 80,000 tons of nitrogen oxides, and 100,000 tons of particulate emissions (whose adverse health effects are becoming more widely known) per year compared with the production of the same amount of electricity from an average U.S. coal-fired plant.

As we all know, significant regulatory changes are underway in the electric utility industry as a result of the Energy Policy Act of 1992 and other factors. Utilities and their customers are becoming ever more strongly motivated solely by short-term economics. In addition, natural gas prices have been very low in recent years. Tradition, regulation, and subsidies have favored the use of fossil fuels for electric power generation in the country for decades. Because geothermal energy is not yet at the point of being able to compete in such a biased situation, the environmental, fuel-diversity and energy-security advantages of this clean, reliable energy source are at risk of being lost. Not only that, but the survival of the planning and bidding process as carried out by such states as California is in doubt due to recent actions by the Federal Energy Regulatory Commission. In addition, the Bonneville Power Administration may rescind agreements to purchase geothermal power in the Northwest.

All of this adds up to a very troubled, stagnant domestic geothermal market. Our industry must curtail activities within U.S. borders and move offshore to survive. While foreign development results in expanded export of U.S. goods and services, opportunity to develop domestic geothermal resources is being lost along with its contribution to fuel diversity, energy security, and environmental preservation. It is obvious to us that we must lower the costs of geothermal power production to be able to compete in the domestic market. The only way we see for lowering our costs is with better technology.

COST-BENEFIT OF GEOTHERMAL R&D

Highly successful programs have been and are now being carried out by DOE's Geothermal Division, working with our industry. Partly as a result of Federal investment in research, the cost of generating power from geothermal resources has decreased by about 25% over the past two decades. Federal programs have provided seed money that has spawned much greater investment by our industry on its own. For example, nearly 20 years ago, the DOE invested \$10 million to support research on methods to handle the highly saline geothermal brines from the Salton Sea field in the Imperial Valley of California. Brines from this field are 10 times saltier than the ocean, and are highly corrosive. That modest government investment provided the technology base for our industry to develop advanced power-plant designs. When industry-funded prototypes were successful, we went on to provide \$700 million of our own money in developing the 240 megawatts of generation in operation today at the Salton Sea field. As a continuing benefit of this initial, very modest \$10 million Federal investment in R&D, the operators of the Salton Sea geothermal field, California Energy Company, have been contacted by the Government of Djibouti about the feasibility of power generation from the high-salinity brine fields in that African country. No other nation presently has the technology ours does for using these brines.

The United States is being challenged today on many fronts in the arena of international competitiveness. The time-proven way to address this challenge is with superior technology. Basic and applied R&D are essential to reduce the technical and financial risks of new technology to a level that is acceptable to the private sector and its financial backers. Few emerging, financially marginal industries are able to undertake these costs totally on their own. Our industry is far smaller than the oil, gas, coal or nuclear industries, and has not had the benefit of decades of Federal and private-sector R&D that they have had. The geothermal industry faces challenges from Japan, Italy and other countries for technological superiority. At the present time, the Government of Japan spends about \$150 million annually on geothermal R&D and cost-sharing with their industry. Japanese geothermal turbine-generators, a major capital component of a geothermal power plant, dominate the market now, and the Japanese government has stated its intention to take leadership in all geothermal technologies. Given the availability of an estimated 80,000 megawatts of geothermal power that could be developed in emerging nations in the next 20 years, and the World Bank's recent estimate of the need for an investment of \$100 billion for electrical power generation in those nations, the potential cost/benefit ratio of developing technological superiority in geothermal energy is evident. We must rise to this challenge -- this is an opportunity America can not afford to lose.

If today's technology is "frozen in" through curtailment of our R&D program, (1) the Japanese and Italians will quickly surpass our technological edge, (2) geothermal development will stop in the U.S., and (3) our society will lose geothermal energy's benefits of fuel diversity, enhanced energy security and a cleaner environment. With the modest R&D program we propose, the cost of generating electricity from geothermal resources could be lowered by perhaps 40% over the next decade. The R&D projects in DOE's budget will provide a technology base for further investment by the industry of hundreds of millions of additional dollars and result in thousands of megawatts of new environmentally sound geothermal power generation and installation of energy-saving direct heat applications such as geothermal heat pumps. These R&D projects will have the ultimate effect of bringing 10,000 megawatts more on line in the U.S., and 40,000 megawatts more on line in developing nations. The value of such development to the U.S. economy would be an estimated \$30 billion in direct sales of equipment and services.

PREPARED STATEMENT OF GENERAL ATOMICS, SAN DIEGO, CA

SUMMARY

General Atomics (GA) appreciates the opportunity to provide written testimony to the Energy and Water Development Subcommittee on recommendations for the Department of Energy (DOE) FY-96 energy research and development budget. GA is involved in performing research and development on three promising advanced energy system programs, the Gas Turbine-Modular Helium Reactor (GT-MHR) Program, the Fusion Energy Development Program, and the Space Reactor Power Systems Program.

The GT-MHR has the potential to provide the highest safety, lowest cost, least environmental impact, and most proliferation resistant fission energy source for meeting energy needs, both domestically and internationally, starting in the first decade of the next century. Fusion represents a long-range energy resource with the potential to provide a virtually inexhaustible energy supply. The Space Reactor Power Systems Program is developing systems for converting heat directly to electricity for supplying reliable power for space applications.

GA recommends the following appropriations for these programs in the FY-96 Energy R&D budget:

• Gas Turbine - Modular Helium Reactor	\$ 25M
• Fusion Energy Development	
- Magnetic Fusion	\$366M
- Inertial Confinement Fusion	\$241M
• Space Reactor Power Systems	\$ 15M

GA remains confident that the promise of each of these programs will be realized. The success of these programs will make significant contributions to satisfying future energy needs, and help maintain U.S. leadership in the supply of the world's energy generation technologies.

THE GT-MHR PROGRAM

This testimony on the GT-MHR program is presented on behalf of the entire industrial team involved with the GT-MHR Program, namely, Bechtel, AlliedSignal, ABB-Combustion Engineering, Stone and Webster Engineering Corporation and General Atomics.

Our electricity demand and economy have grown together over the last 20 years while non-electric energy use actually has declined. To sustain economic growth, the U.S. electricity supply must continue to increase, even with aggressive conservation and higher energy use efficiency. A relatively modest 1.5 percent annual growth rate requires about a 25 percent increase in capacity, or over 200 GWe of new generation capacity, by the year 2010. This does not include replacement of some of the existing baseload capacity in the interim period. Renewables, with the possible exception of hydro power, cannot provide significant new baseload capacity. Without the deployment of additional nuclear power, essentially all of the needed new baseload capacity would have to come from fossil fuels.

Fossil fuels will also dominate the rapidly growing electricity generation market elsewhere in the world. Worldwide electricity consumption is expected to double in the next 30 years with most of the new generation coming from the combustion of fossil fuels, primarily coal. Hence, despite the aspirations of the 1992 Rio Declaration to stabilize greenhouse gas emissions, these emissions will continue to grow for decades to come. If atmospheric pollution is to be stabilized, nuclear power must play a significant role in the world's future energy supply.

The future deployment of nuclear power must address the concerns with current nuclear power. These concerns have been well documented by many experts and can be summarized as being primarily: (1) the public's perception of uncertain safety; (2) marginal economics (driven, in part, by the steps taken to ensure safety); and (3) the disposition of high level wastes. The GT-MHR is a breakthrough technology which addresses these concerns. The GT-MHR has:

- the highest safety margins of any current or proposed fission nuclear power concept;
- a highly competitive cost of electricity generation in the projected time frame of deployment;
- the least environmental impact of any fossil or nuclear fission electricity generation alternative;
- the most proliferation resistant fuel cycle of any nuclear fission system; and
- further technology growth and spin-off process heat applications such as H₂ production

The GT-MHR uniquely couples the high temperature capability and passive safety of the modular helium reactor with a closed Brayton cycle (gas turbine) power conversion system to generate electricity at a net thermal conversion efficiency of approximately 47%, close to a 50% improvement in efficiency over light water reactor plants. In the GT-MHR closed Brayton cycle, the reactor's helium coolant directly drives a turbine-generator for the production of electricity. This revolutionary advancement has been made possible by evolutionary technology developments during the last decade in large industrial gas turbines; large active magnetic bearings; compact, highly effective plate-fin heat exchangers; and high-strength, high temperature steel alloy vessels. No other existing or advanced nuclear fission power system has the capability to use a gas turbine power conversion system and achieve the high efficiency of the GT-MHR.

The inherent characteristics of the modular helium reactor, which include ceramic coated fuel, helium coolant, graphite moderator, and a unique low power density core design, are combined to produce unparalleled safety. The nuclear reaction shuts itself down at temperatures higher than normal operating temperatures. In the event of a complete loss of coolant event, decay heat is passively removed. The bottom line is, the modular helium reactor is melt-down proof.

Passive safety, power conversion system simplicity, high thermal efficiency, and modular design result in low capital and production costs. The busbar generation costs for a mature four unit GT-MHR commercial plant is projected to be approximately 25% lower than the contemporary advanced fossil-fueled (clean coal and natural gas) alternatives. The GT-MHR's high efficiency also reduces thermal discharges and high-level wastes. The GT-MHR thermal discharge is approximately 50% less and its actinide production is approximately 60% lower than advanced light water reactor plants per unit of electricity generated. In addition to producing less quantities of plutonium, no reprocessing capability exists in the world for extracting the plutonium from spent MHR fuel, making the GT-MHR fuel cycle more proliferation resistant than current nuclear power systems.

The MHR is unique among nuclear systems in that it can provide clean, emission-free heat energy for high temperature process heat applications. The MHR has the capability of providing heat energy, without producing CO₂, at temperatures up to approximately 1000°C for process heat applications such as efficient thermochemical production of hydrogen.

The GT-MHR can resolve the proliferation risks of weapons usable plutonium in a safe, economic, and timely manner with very low environmental impact. The GT-MHR is a "deep burn" option. Without reprocessing it achieves five times greater net destruction of weapons desirable Pu-239 in a once-through fuel cycle than other fission options. Further, if combined with an accelerator driven option, over 99% of the Pu-239 can be destroyed without reprocessing or recycle. Russia has proposed a cooperative U.S./Russian program for the development of the GT-MHR for the consumption of Russian weapons plutonium. In a cooperative program with Russia, the GT-MHR development and demonstration cost to the U.S. would be about one-third the cost of a U.S. only program.

Fueled with either uranium or plutonium, the GT-MHR can also fulfill the function of providing our remaining nuclear weapons stockpile with a reliable tritium supply at lower cost than either accelerators or other fission options. The MHR was being developed as a New Production Reactor for tritium supply when the decision was made three years ago to defer the program. At very little additional cost, tritium can be co-produced in a multi-purpose configured GT-MHR producing electricity for sale while deep burning surplus weapons plutonium. The multi-purpose GT-MHR is the most practical and cost effective alternative available for performing the multiple missions of eliminating the plutonium proliferation threat and providing new tritium supply capacity.

The potential of the GT-MHR and the incentives for its continued development are shared by the U.S. utility industry. In April, 1994 the Advanced Reactor Corporation (ARC), an organization of U.S. utilities, submitted a report to the DOE in which they noted, with regard to the GT-MHR, that *"It is strategically important to this nation to understand better whether or not this powerful potential is real, and if it represents the one of a very few credible 'breakthroughs' in longer-term electricity generation."* ARC's report on behalf of the utility industry clearly contradicts DOE's position as contained in its FY 96 Congressional Budget Request that there was a *"...continuing lack of interest in this technology by the private sector"*.

Our country spearheaded the development of nuclear power which created tens of thousands of high-quality jobs, stimulated interest in science and technology, contributed to the development of our scientific institutions, and promoted trade and export. The U.S. can best guide and direct international nuclear energy policy issues if the technological leadership is obvious and recognized. Development of advanced nuclear power by the U.S. is needed to maintain technological leadership. Because of international interest, if the U.S. does not complete development of high temperature gas cooled reactor technology, another country will assume leadership of this technology. Both Japan and China have aggressive programs in place and are presently constructing 30 and 10 MWt developmental gas cooled reactors, respectively, with both projected to startup by 1998.

The recommended GT-MHR Program is directed to the completion of sufficient design and development to permit a decision on proceeding with a cost shared demonstration project by 1998 in general conformance with the intent of the Energy Policy Act of 1992. For FY 96, a DOE budget appropriation of at least \$25 million is respectively recommended. The programmatic emphasis in FY 96 should continue to focus on the high priority areas of demonstrating acceptable fuel performance; power conversion system design development and testing; licensing criteria development; and overall Program strategy development and planning with emphasis on maximizing the benefits of international cooperation.

In summary, the GT-MHR's high efficiency, low generation cost, low environmental impacts, superior safety, and proliferation resistance warrant that the GT-MHR be given high priority for development. The GT-MHR can make a significant contribution toward the nation's secure electric energy supply, and become a major export product for the burgeoning worldwide power markets.

MAGNETIC FUSION ENERGY

Fusion research is one of the most scientifically challenging and technologically demanding research projects that mankind has ever undertaken. GA continues to play a leadership role in this research.

Even though we know the basic principles of fusion, we have not yet attained a sustained, controlled fusion reaction on earth. The bold promises of early demonstration of fusion energy were a consequence of weak understanding of the full scientific complexity and difficulty of the task. However, with the development of improved mathematical techniques, the advances in computers and computational physics, and drawing upon various disciplines of physics, fusion researchers have made impressive progress. The present U.S. fusion program is hobbled by: (1) a lack of leadership and a strong aversion to risk within the Department of Energy; (2) a fusion community concern about sustaining livelihood and careers; and (3) a world that sees itself awash in oil and other hydrocarbons . . . no immediate need for a new energy technology. Nonetheless, fusion is truly the energy source of the future. Fusion could be an environmentally attractive, large baseload electricity producer and is the only technology currently envisioned as suitable for inter-planetary or inter-solar system space travel.

Principles for a More Effective Magnetic Fusion Research Program

- The program should have clearly stated near-term and long-term program objectives. These should take the form of deliverables whereby the Department of Energy and the Congress can clearly measure the progress and the implications of that progress.
- There should be clearly identified priorities. The largest budget item may not necessarily be the highest priority. The highest priority element should always get the necessary funding, regardless of what the total budget is on a year-by-year basis.
- Every program element should have a sunset clause that identifies objectives and a timetable. At initiation a plan for ending a program and transition into the next fusion priority element should be presented.

Program Priorities1. International Collaboration

The U.S. should sustain its commitment to participate in the full Engineering Design Activity, including ITER design and associated research and development. ITER represents the vehicle to demonstrate a sustained controlled fusion reaction at power levels comparable to large electric power plants. Through international cost sharing, ITER provides a large leverage in the U.S. fusion budget.

2. Advanced Tokamak Physics

The DIII-D tokamak facility has the inherent capability to test most of the physics and scientific concepts currently considered to have the greatest leverage in understanding and improving the confinement of reactor grade plasmas, thus leading to smaller and more efficient magnetic fusion energy systems. These scientific concepts can be explored with the upgrade of the device heating, control, divertor, and scientific diagnostic capabilities. The DIII-D facility is becoming an international user facility with scientific personnel from U.S. and foreign laboratories and universities conducting experiments. By implementing an aggressive upgrade program now, the scientific objectives of the GA DIII-D fusion program can be completed by the end of the century, and the operating funds can then be redirected to other U.S. fusion research activities.

3. A Steady-State Tokamak

At present the U.S. is designing the Tokamak Physics Experiment (TPX), a research facility to explore the science of plasma interactions and the physics of steady-state plasmas. This facility will provide scientific information that would have a bearing on the design of post ITER fusion experiments. It also has the attraction of establishing a U.S. research facility of current technology that would be available to the U.S. fusion scientists early in the 21st Century. In the absence of such a capability, the U.S. will have no state-of-the-art fusion research facility available to the U.S. scientists and engineers after 2000.

4. Concept Improvement

The Alcator-C Mod at MIT provides concept improvement through divertor physics and current drive and should be continued. In addition, the development of the driver technology required to explore inertial confinement fusion as an energy option is an important candidate as an "alternative" to the tokamak fusion energy concept.

Because of its long term nature and enormous potential payoff, fusion energy research is one of the most appropriate scientific and energy research endeavors our federal government should be funding. To meet these principles and program priorities, we request that the Congress support the full President's request of \$366M for Magnetic Fusion Energy research for fiscal year 1996.

INERTIAL CONFINEMENT FUSION

I urge the Committee to continue to support the Inertial Confinement Fusion (ICF) program. This technology is important for the DOE Defense Program's Science-Based Stockpile Stewardship activity which is developing the information and capability necessary to maintain a nuclear deterrence capability without nuclear testing. GA provides ICF targets and technical support to the three weapons laboratories, Livermore, Los Alamos, and Sandia, and to the University of Rochester and the Naval Research Laboratory. We also believe that the National Ignition Facility is the appropriate next step for the Inertial Confinement Fusion program. This project will demonstrate the physics of ignition, define the path to high gain operation, and establish the capability to meet the Defense Program's needs for stockpile stewardship in the absence of underground testing. GA requests that the Committee fully support the President's request of \$241M for the Inertial Confinement Fusion program and the National Ignition Facility construction for fiscal year 1996.

SPACE REACTOR POWER SYSTEMS PROGRAM

The DOE budget for space reactor power technology programs in FY-95 is only \$1.5 million, and we understand it will be zero in FY-96. U.S. industrial capability in these technologies is rapidly disappearing, and when lost the time and cost to recover this capability will be large. A continuing DOE space reactor technology program will provide technology for terrestrial as well as space programs, and for solar energy systems as well as nuclear systems. Specifically, there are five on-going government programs that will be adversely affected by the elimination of the DOE technology program:

- | | |
|-----------------------------------|--|
| 1) Air Force Phillips Laboratory: | Bi-modal space power program. |
| 2) Air Force Wright Laboratory: | Remote terrestrial site power systems. |
| 3) Defense Nuclear Agency: | Evaluation of the Russian TOPAZ system |

- 4) Navy: Underwater applications.
 5) NASA: Advanced radioisotope systems.

The Phillips Laboratory bimodal program, initially based on solar energy, will provide a system for changing orbit, for powering satellite operations, and for repositioning a satellite in response to various global conflicts. Advanced power systems for remote sites are being developed at Wright Laboratory to reduce cost and improve capability. The Defense Nuclear Agency has purchased six Russian TOPAZ space reactor systems for technology evaluation, to reduce the cost and schedule of future U.S. programs. The Navy is studying advanced propulsion systems for underwater applications systems. Finally, a continuing DOE technology program is essential to NASA's interest in advanced power systems to enable low cost exploration missions.

Our national security will be adversely affected if our industrial capability in space reactor power technologies is lost. Abdication of leadership in this field will leave the future to the Russians working with the Chinese and Japanese. We will not only lose our ability to influence developments world wide, but we will not have the technology when we might need it in this country. A budget of \$15 million for a continuing DOE program in space reactor technology is recommended for FY-96.

PREPARED STATEMENT OF DAVID P. BECK, PH.D., PRESIDENT, CORIELL INSTITUTE

Mr. Chairman, thank you for providing the opportunity to submit testimony concerning an important initiative the Coriell Institute is undertaking to ensure the steady progress of medical research in the United States. In particular, my testimony addresses the need to establish a National Human Cell Repository Center, and the importance of such a repository as a logical step in advancing cutting-edge biomedical research in the Department of Energy's (DOE) Biological and Environmental Research Program. There is a critical and increasing need for a contamination-free supply of human cells in high level research into genetic disorders, cancer, heart disease, and other serious human diseases.

As a scientist and President of the Coriell Institute for Medical Research, it is my job to oversee the acquisition, characterization, cataloguing and shipment of human cell cultures to the DOE and NIH centers for genome research and other high level research facilities around the United States and the world. Coriell Institute is the world's largest provider of such cell cultures.

By way of background, the Coriell Institute was founded in 1953 by Dr. Lewis Coriell, a scientist who developed pioneering techniques for growing human cells in culture and thus permitting their use in scientific research. Early on, Coriell technology was crucial in growing the cultures used in development of the Salk Polio Vaccine. Today, scientists throughout the world depend on Coriell cell cultures for use in disease research, and many research advances have depended directly on the cultures supplied by Coriell.

Biomedical science today is making rapid advances in both diagnostic and therapeutic techniques. For example, molecular antibiotics are being developed which can find and destroy the genes of an infectious organism in an utterly specific fashion, and gene-based therapeutic techniques are being tested through clinical trials for the treatment of such diseases as cancer. In short, we are on the proper scientific pathways which will one day make it possible to eliminate such diseases as diabetes and cystic fibrosis and other diseases which stem from defective genes.

Today, the problems associated with sustaining progress in advanced disease research stem from the fact that the volume of cells needed is growing and will continue to grow as the scientific community extends molecular genetic technology into new areas such as mental illness. Specifically, this means that of the 4,000 plus genetic diseases known to exist, only about 1,000 are banked and available as cell cultures. In order to procure and catalogue cell cultures for the remaining 3,000 diseases, a dedicated human cell repository is essential.

Mr. Chairman, the Coriell Institute has many responsibilities in its role as the nation's premier supplier of cell cultures. Of particular note is the role of Coriell Institute, in

response to demands from the research community, in acquiring collections of specific cells for research into specific diseases. A case in point is one where, over the past year, Coriell has been building a collection of cells from breast cancer patients. Our scientists were involved for many years in the search for a mammary tumor virus, and have recently developed a new technology for whole genome amplification to make genetic material available from tumors from which cell lines are difficult to grow. This technique allows for access to rare and valuable tissue from patients with a family history of the disease.

The breast cancer initiative is a good illustration of the ways in which new frontiers can be crossed in studying diseases. It is also a telling illustration of a serious problem in advanced research -- specifically, the increasing demand for cell cultures and the related services which support high level research.

Mr. Chairman, as the individual responsible for the largest human cell repository in the world, I can tell you that a National Human Cell Repository Center is a critical next step to facilitate the most sophisticated research on genetic diseases. I believe, as do others in the field, that a national center which provides cells and genetic material to researchers around the country and abroad will greatly enhance the quality of medical research. As NIH Director Harold Varmus recently testified, "we foresee new means to prevent disease, and we anticipate the development of novel therapies for the next century, based on the delivery of genes to ailing cells, and drug design guided by molecular structures."

Novel therapies for the next century is the goal in disease research as NIH Director Varmus has pointed out. To accomplish that goal requires a consistent and reliable supply of cell cultures, the space to store such cultures and the human skill and equipment to support a state-of-the-art facility.

It is my belief that the establishment of a National Human Cell Repository Center will provide an essential component in support of disease research in both the Federal and non-Federal sectors. The Department of Energy has a long-standing interest in examining health effects of environmental factors; its founding of the Human Genome Project set in motion much of the exciting activity we see today in genetics research. In support of this project, Coriell Institute, during the past five years, has distributed hundreds of shipments of cell lines to DOE labs. While such activity has been important, it will be insufficient for future efforts in genetic research, which is why we need a National Repository.

Mr. Chairman, after studying the needs for and potential benefits of any national repository, I believe that establishing such a facility from the ground up would be excessively expensive, and require too much time in planning and execution. However, a National Center can be built by simply adding to an existing resource which is positioned to supply research demands into the next century. That resource is Coriell Institute.

Given Coriell's position as the world's largest human cell repository and its interaction with the DOE and NIH labs, it makes perfect sense to establish a National Center in a public-private partnership fashion, particularly given the Federal Government's long-standing and continued support for medical research. By making an investment in a National Human Cell Repository Center, the Federal Government can help to ensure the availability of human cells for disease research scientists throughout the United States and the world.

Mr. Chairman, the Coriell Institute already has a plan for establishment of a National Repository, and we are prepared to move forward immediately. In summary, it is my belief that Federal investment toward this end will produce tremendous benefits and that, considering the cost of disease to this country and the potential for missed research opportunities if we do not move forward, we cannot afford not to establish a National Cell Repository.

Thank you for your attention. I will be happy to answer any questions.

LETTER FROM CAROL WERNER, DIRECTOR, ENERGY AND CLIMATE
PROGRAM, ENVIRONMENTAL AND ENERGY STUDY INSTITUTE

April 28, 1995

The Honorable Pete Domenici
Chairman
Subcommittee on Energy and Water Development
Committee on Appropriations
U.S. Senate
Washington, D.C. 20510

Dear Senator Domenici:

I wish to submit this letter for inclusion in the hearing record regarding the Department of Energy's Renewable Energy programs. The Environmental and Energy Study Institute (EESI) strongly supports DOE's FY 1996 budget request for these successful, cost-efficient programs. The public-private partnerships forged by DOE's extremely dedicated, hardworking, and innovative staff achieve the multiple objectives of generating economic development, environmental protection, international competitiveness, and trade deficit reduction.

Now is the time for strategic investments by the federal government in renewable energy technologies such as the solar power industry, wind energy systems, hydrogen research, and the geothermal energy industry. Many of these technologies are close to commercialization and need only a small push from the federal government to close the gap between research findings/products and market penetration. These growing industries create jobs for Americans in the manufacturing, sales, and installation markets.

These technologies can also influence the global economy as hundreds of thousands of developing cities, towns, and nations seek clean sources of energy. These foreign markets will be captured by companies subsidized by the Japanese and European governments unless the American renewable energy industry receives the support it requires to compete.

After two decades of investing in research and development, the United States solar energy industry leads the world in virtually all technologies. Over 1.5 million buildings in the United States utilize solar water heating systems, which collectively displace over 1500 megawatts of electricity, the equivalent of 1.5 nuclear power plants. More than 300,000 solar water heaters are used to heat swimming pools. Over 20 "Fortune 500" companies have invested in solar manufacturing, and several new manufacturing facilities are scheduled to be completed in the next few years. The world photovoltaic markets are growing at about 20 percent per year with approximately 70 percent of American photovoltaic production being exported.

However, we are highly vulnerable to losing our commercial edge in this field to overseas competitors - Germany, Japan, and Denmark have aggressive renewable energy programs. In fact, India has launched a large renewable R&D program. In Japan, the city of Tokyo alone has 1.5 million solar water heating systems, the same number as in the entire United States. Without aggressive federal leadership to facilitate and accelerate commercialization of solar energy, the United States stands to forego enormous domestic employment and international market opportunities.

The federal government needs to take the lead in creating partnerships with these emerging renewable energy areas as opposed to mature technologies. Renewable energy investments should be the energy resource priority for the Energy and Water Subcommittee.

DOE's role of catalyst in these partnerships will produce new jobs today and new energy sources for the future. Taxpayers directly benefit from these cost-sharing projects: they pay for themselves by reducing our petroleum consumption and imports and increasing economic savings to the national economy. Many programs, like geothermal energy systems on federal lands, provide royalty payments to the United States Treasury.

Geothermal energy also demonstrates the return the federal government can expect on its investments in renewable energy sources. Cost-sharing partnerships between the private sector and DOE established America's geothermal industry. Thirty thousand workers are employed in the industry, which generates electricity worth \$1 billion per year in utility sales in the United States. Internationally, the United States geothermal businesses have installed systems worth \$2.5 billion, and have signed power contracts for another \$5 billion in overseas development.

Not only do these technologies provide economic benefits, they also protect human health and the environment. More than fifty million Americans live in counties that regularly violate air quality standards. The production and use of energy cause more environmental damage than any other human activity in the world. DOE's Renewable Energy programs will produce savings of over seven million metric tons of annual carbon equivalent emissions by the year 2000; 30 million metric tons by 2010; and 75 million metric tons by 2020.

Wind energy is another clean, cost-effective source of power. Today there are 16,000 utility scale wind turbines operating in the United States. These turbines generate 3.5 billion kilowatt-hours of electricity each year, enough to serve the residential power needs of a city the size of San Francisco, Boston, or Detroit. Over the last decade, the cost of wind-generated electricity has dropped by more than 80 percent. New utility-scale projects are being built for as low as 3.9 cents per kilowatt-hour, comparable to the cost of conventional electricity. About \$3.5 billion is invested in the U.S. wind energy industry, where watt-for-watt, dollar-for-dollar, that investment creates more jobs than any other utility scale energy source.

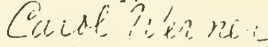
EESI recognizes the need for periodic evaluation of federally-funded programs and the budget constraints within which you must function. These factors must be weighed against the tangible benefits of DOE's Renewable Energy programs and the promises they hold for the future. The partnerships entered into by DOE with the private sector have produced technological, cost-cutting breakthroughs that enable these industries to successfully compete in domestic and international markets. The fact that these markets will only grow, with or without American involvement, leads to the conclusion that this nation has a vested interest in continuing to compete in and control these markets. If we choose not to invest in this promising future, we can look forward to increasing our oil imports to 65% by the year 2010, according to the Energy Information Administration. This dependence will only aggravate the trade deficit and leave the American economy vulnerable to oil price shocks.

Americans support renewable energy and public-private partnerships like DOE's Renewable Energy projects. A public opinion survey conducted in December, 1994, found that 42% of the 1,000 people polled (and almost as many Republicans as Democrats) thought that renewable energy should be the highest priority for R&D funding. Even more people - 85% - agreed that the federal government should "support partnerships with American business to promote sales of energy efficiency and renewable energy

technologies through research and development and programs to open new domestic and international markets."

These programs create jobs. They protect the environment and the nation's economic security. They work, and the American people want them. I urge you to support these worthwhile programs to help preserve and further this nation's economy, environment, and future.

Sincerely,



Carol Werner

Director, Energy and Climate Program

PREPARED STATEMENT OF GREGORY YUREK, PRESIDENT AND CEO,
AMERICAN SUPERCONDUCTOR CORP.

Mr. Chairman, thank you for the opportunity to submit this statement for the hearing record.

As President and CEO of American Superconductor Corporation (ASC) based in Westborough, MA, I would like to urge your continued support of a vital U.S. competitiveness program sponsored by the Department of Energy. The Superconductivity Partnership Initiative (SPI) is a government/industry partnership program designed to help maintain the United States' current lead in High-Temperature Superconductor (HTS) technology despite extraordinary, state-funded international competition. The SPI supports joint development of crucial HTS applications including power transmission cables, motors, generators, and utility protection equipment with a potential world market for these HTS products conservatively estimated to be \$8 to \$10 billion by the year 2000.

ASC is a recognized global leader in HTS technology with a focus on the commercial potential of HTS technology as it relates to the manufacture of wires and wire products. Founded as a Massachusetts Institute of Technology spin-off, ASC is at the forefront of HTS development. We are currently involved in three of the four ongoing SPI projects including a recent award to begin development of an HTS power transmission cable with our partners the Electric Power Research Institute, Pirelli Cable Corporation, and three of the Department of Energy Laboratories.

High-temperature superconductors are certain materials that conduct electricity with nearly perfect efficiency. When applied to electrical machinery applications, they bring benefits that will revolutionize conventional equipment paradigms and will directly influence the global competitiveness of the country that controls this technology.

DoE established the competitive SPI program in 1993 to enhance the progress made in HTS wire development and to assist companies committed to developing HTS wire-based products. Multi-disciplinary teams that include the product end-user were formed to engineer several applications simultaneously, while the under-pinning technology also continues to be improved. It is important to note that industry shares approximately 40 percent of the costs of these projects.

With the continued success of the DoE SPI program, the United States will be the winner of what is truly an international race for leadership in this multi-billion dollar industry. As a result, we will be in a position to develop a new technologically advanced electric power equipment industry that will create highly skilled, high paying jobs in the U.S. Because most U.S. electrical equipment is currently imported, nurturing the growth of this domestic industry will have a very favorable impact on

the trade deficit. Without a doubt, the decision to support HTS development during this critical period will have important ramifications for the U.S. economy and security.

Only seven years after the discovery of high-temperature superconductivity, electric power applications based on HTS are now being designed and tested thanks in large part to government and private partnerships sponsored by SPI. These applications offer many benefits to the national electric system including:

- increased energy efficiency
- reduced equipment size
- reduced noxious emissions
- increased power grid stability and reliability
- deferred utility infrastructure expansion
- flexible electricity dispatch and load management

All of these benefits have a common outcome: lower electricity costs and improved environmental quality.

Through SPI sponsored research and development, DoE is projecting that by 2010 the U.S. electric power systems equipment industry will regain a major share of the global market by offering superconductor products that outperform the competition. In the U.S., the electric power system will gain efficiency and flexibility through increased use of HTS devices. As a result, U.S. productivity and efficiency, especially within the industries that are large users of electricity, will be greatly improved.

Mr. Chairman, the funding level included in the President's budget for fiscal year 1996 would only fund one of the four current SPI initiatives. In order to meet the vital funding needs of the ongoing SPI-sponsored projects, I strongly urge your support for an appropriation of \$40 million in fiscal year 1996. We are at a critical stage in the SPI program. Continued funding is essential for both HTS product commercialization and to ensure the United States' continued leadership in this industry. SPI has been a model for successful government/industry partnerships, but we need your support to keep the United States at the forefront of this new technologically advanced industry.

PREPARED STATEMENT OF MARCUS H. VOTH, DIRECTOR, RADIATION SCIENCE AND ENGINEERING CENTER, PENNSYLVANIA STATE UNIVERSITY

INTRODUCTION AND SUMMARY

This testimony is submitted by Marcus H. Voth, Director of the Radiation Science and Engineering Center, The Pennsylvania State University and Chairman of the University Reactor Support Committee of the National Organization of Test, Research, and Training Reactors (TRTR). TRTR is made up of the directors and managers of US research and test reactors, including 34 currently operating university research reactors (URRs) on 32 campuses in 25 states.

On behalf of TRTR, we wish to thank this subcommittee for its past vision and leadership. During the 1980's, URRs were permanently shut down at the rate of two per year. With the support of this committee, \$1M per year was provided in FY90 through 93 to upgrade URR instrumentation. It is noteworthy that there were no additional shutdowns during these years. However, this important support was not appropriated for FY94 and FY95 during which three additional URRs are being permanently shut down. The Department of Energy has partially restored that program in the budget proposal before Congress. We ask that this provision be fully funded at its previous (FY90-93) level of \$10.1 M.

This testimony supports the following conclusions:

- University reactors are valuable national resources; they are the source of neutrons for research in such diverse areas as medical isotopes, human health, life sciences, environmental protection, advanced materials, and food science.

- University reactors provide highly qualified, technically knowledgeable personnel needed by national laboratories, the federal government, academia, and private industry for basic and applied research critical to US technological competitiveness.
- Host institutions bear a disproportionate share of URR operating expenses. Sharing of costs for such major research facilities by federal agencies demonstrates to university administrators their significance and value.
- The National Academy of Sciences recommends federal support to maintain, refurbish, modernize and upgrade existing URRs, a much less costly alternative than replacing them.
- The University reactor fuel assistance and support line item proposed for the FY96 budget at \$6.13M represents a significant reduction from funding in previous years. We respectfully request and submit justification for returning to the FY90-93 level of funding of \$10.1 M.

MISSION AND CONTRIBUTIONS OF URRs

University research reactors in the United States form a fundamental and vital component in a broad spectrum of our national research and education infrastructure critical to such national priorities as health care, education, environment, and technology transfer. They are a source of neutrons for multidisciplinary research efforts resulting in contributions to the fields of physics, chemistry, biology, medicine, epidemiology, archeology, environmental sciences, material sciences, fluid mechanics, geology, energy production and many other areas.

In education, URRs are used for laboratory instruction in all these fields with emphasis on radiation measurement, reactor science and engineering, and applications of radiological techniques. Many of the reactors serve as a center for precollege education programs offered for high school students and teachers who come to the reactor for instructional programs and research. URRs also form the base for education of future scientists and engineers in the above mentioned broad range of disciplines that use reactor based techniques to solve unique problems.

Compared to a national user facility, URRs often provide a superior environment for graduate research because of less rigid facility scheduling, enhanced flexibility, lower operating costs, and available local supporting capabilities. They are a rich resource for radiation sciences research, and can serve as a development base for new techniques and advanced instrumentation to be used at national centers.

The professions entered by URR users are as diverse as their research disciplines. Many who study biology, chemistry, epidemiology, and radiological health may enter professions in medicine and human health. Others may enter professions in advanced materials research and development, energy resources development and production, and environmental programs. Education and research experience received at URRs benefit future employers including government agencies, national laboratories, medical practice, academia, and private industry; this is one of the most effective and efficient forms of Technology Transfer.

The mission of URRs and nuclear engineering education are frequently confused as is their relationship to the commercial nuclear power industry. Nuclear engineering education involves the study of radiation science, including the operation of nuclear reactors. URRs serve as radiation sources and laboratory facilities for nuclear engineering students. However, nuclear engineering is only one of the numerous disciplines using URR facilities. While the commercial power industry employs nuclear engineers, the majority of graduates find employment in other sectors. The need for state-of-the-art URR facilities transcends the status of nuclear power development through the numerous other applications for radiation science.

University research reactors are used for environmental studies such as acid rain and pollution dispersion. They also contribute to nuclear power technology, the only demonstrated energy source which assures sustainable development of our planet while preserving our reserves of fossil fuels for consumer and agricultural product feed stocks rather than combustion fuels. The nuclear test ban treaty verification is also being supported. Remote radiation monitoring instrumentation able to sense clandestine weapons testing (components of a global atmospheric radionuclide detection system) is being developed and tested at a URR facility.

With the attention currently focused on national health care, it is appropriate to address URR contributions to medicine.

- Many URRs contribute to medicine through basic research in the life sciences such as identifying molecular structures and interactions. They also produce and investigate applications of radioisotopes.
- One URR (the University of Missouri) is high enough in power to produce significant quantities of a wide variety of radioisotopes for medical application and life sciences research. University researchers there study new ways to use radioisotopes for therapy of cancer and other ailments as well as using them to answer important basic questions about living organisms. The radioisotopes from this URR also support similar research across the country.
- Another URR (Massachusetts Institute of Technology) is investigating the direct neutron irradiation of deep-seated melanoma (skin cancer) and brain tumors that have taken up a boronated drug. This treatment is termed Boron Neutron Capture Therapy (BNCT). Patient treatments and animal studies have suggested that BNCT may be effective in combating these diseases. In contrast, these diseases are invariably fatal when treated with conventional therapies.
- Neutrons and radioactive isotopes are such common research tools that today well over half of the new drugs approved by the FDA are developed using radiation based science and technology. Many of the 10,000,000 nuclear medicine tests done annually eliminate the need for exploratory surgery, reducing both the pain and the cost of treatment while improving the quality of the diagnosis.

URR FUNDING SOURCES AND NEEDS

Most URRs were constructed in the late 50s and early 60s with major federal financing. Since then, operating costs have been borne primarily by the host institutions with relatively little funding available for major maintenance, equipment replacement, or upgrades.

In 1991 TRTR conducted a comprehensive survey of URR expenses and funding sources, showing that the annual operating cost averaged \$1M per reactor or \$37M for the total number of operating URRs. Of the total funding, 85 percent came from the host institutions and 12 percent from the federal government. Primary federal support was from the DOE University Reactor Fuel Assistance Program. In recent years this has been budgeted for \$3.7M. However, it includes conversion of some URRs to low enriched uranium fuel which only addresses a perceived national security issue without necessarily improving reactor performance.

The proposed FY96 budget includes a \$6.13 M line item under the Office of Nuclear Energy entitled "University reactor fuel assistance and support" which consolidates three previous initiatives:

- The "University reactor fuel assistance" program historically funded at \$3.7 M annually under the Office of Energy Research except in FY95 when it was budgeted under the Office of Science Education and Technical Information.
- Fellowships in health physics and nuclear engineering historically funded by the Office of Nuclear Energy at \$0.4-0.5 M annually.
- Special appropriations for reactor instrumentation improvements and academic research grants funded through the Office of Energy Research at \$1.0 M and \$5.0 M, respectively, through FY93.

The history of total funding for these programs for the decade has been as follows:

<u>FY90</u>	<u>FY91</u>	<u>FY92</u>	<u>FY93</u>	<u>FY94</u>	<u>FY95</u>	<u>FY96</u>
\$10.1 M	\$10.1 M	\$10.1 M	\$10.1 M	\$4.2 M	\$4.2 M	\$6.1 M

We sincerely appreciate the commitment and vision shown in past appropriations and in the proposed FY96 DOE budget. While the proposed \$6.1 M represents a significant increase from the two previous years, it is significantly less than the \$10.1 M in years prior to that. We believe that \$4.0 M should be redirected to augment the proposed \$6.1 M, restoring the historic \$10.1 M. This would reinstate an important program that was totally omitted from the \$6.1 M request, research grants for graduate studies. Furthermore, we recommend that a portion of the research grant funding be directed to design projects leading to improved URR performance or experimental capabilities, thereby simultaneously meeting the objectives of both graduate student support and URR upgrades. Since the research grants for graduate studies are academic in nature they fall more in the purview of the Nuclear Engineering Department Heads Organization (NEDHO) than in the TRTR area of reactor facilities; we therefore defer to the rationale presented by NEDHO and endorse their testimony on this subject.

Why is federal support needed? Investments must be made to modernize these facilities which are up to 40 years old, including equipment replacement, new equipment purchases, and major preventive maintenance.

- Vacuum tube instrumentation must be replaced with solid state due to high failure rates and lack of replacement parts.
- Modern equipment such as multi-channel analyzers must be purchased and major new research capabilities such as neutron scattering facilities must be added to match the capabilities of other research reactors throughout the world.
- Major life extension projects such as lining concrete pools or replacing embedded piping are necessary.
- Compared to the cost of new construction or other consequences the cost to maintain and upgrade URRs is relatively small and an extremely sound investment.

A 1988 report by the National Academy of Sciences entitled *University Research Reactors in the United States-their Role and Value*, examines the role of URRs in the areas of research, education, and service, especially in light of the decreasing numbers of reactors. The report concludes that "Policies that will limit closures and encourage modernization of a substantial subset of existing reactors, sufficient in numbers and types to meet national and academic needs for research, education and service are clearly in the national interest." The report recommended an annual level of federal funding for URRs of \$20M (in 1988 dollars) but in fact identified an overall need for approximately \$35M per year.

A report to Congress in response to the Energy Policy Act of 1992 substantiates the Academy recommendation. Specific needs totaling nearly \$80M were identified. Upon analyzing the data, the report concluded that \$6M per year be appropriated for five years, starting in FY96. (Reference: Secretary of Energy Hazel O'Leary to Vice President Al Gore, May 19, 1994.) While the special congressional appropriation of \$1M per year for FY90-93 met some specific instrumentation needs, it was far short of that required for significant upgrades and new capabilities and should be expanded to keep pace with the rate of obsolescence.

The importance of such initiatives, however, is that it sends a powerful message to administrators in the academic community that national leaders do see a need for URRs and are taking steps to improve the situation. Since no such funding was appropriated for FY94 and FY95 it is particularly important for academic administrators to see tangible evidence of significant, timely support to maintain their confidence in the federal government's interest in a healthy infrastructure of URR capabilities.

Without significant URR support, the US will continue to fall behind its international competitors in technological advances. The number of papers presented at the recent International Conference on Neutron Scattering, a frontier of nuclear science research with widespread applications in fields as diverse as health science and advanced materials, is indicative of the loss of US leadership:

<u>Origin of Papers</u>	<u>Percent</u>
England	21
France	20
Germany	14
Japan	10
United States	4
Others	31

CONCLUSION

University research reactors have made major contributions since their construction in the 1950s and 1960s. They continue to support national priorities such as health care, education, environment, and technology transfer. However, these aging facilities now require major investments if they are to remain competitive with neutron sources in Europe and Japan where major commitments have been made to enhance the viability of neutron sources while the US has fallen behind. The operating costs of URRs have largely been borne by the host institutions, but the resources are not available to support both operation and upgrades. By far the most cost effective approach to optimizing our research reactor capability is to maintain, refurbish, modernize, and upgrade our existing facilities.

PREPARED STATEMENT OF THE UNIVERSITY OF MIAMI

In 1994 Congress appropriated \$1 million to the Department of Energy to initiate research, utilizing an electro technology for disinfecting medical waste. Medical waste has become a severe problem in the United States due to recent restrictions to the use of medical waste incinerators issued by the USEPA. Hospitals generate large volumes of very dangerous waste materials and have, in the past, destroyed these wastes via incineration on-site. Recent studies have shown that emissions from these incinerators are dangerous, and therefore, the EPA has restricted their use or mandated very sophisticated, and therefore expensive, emission controls. The result is that the medical community must now find alternative technologies to effectively treat their medical wastes.

The University of Miami had developed a process for treating wastewater utilizing electron beams, which had been supported for many years by the National Science Foundation and the USEPA. This technology is also capable of disinfecting medical waste prior to landfill disposal. Based on this expertise and history of research development, the University of Miami was selected as one of the recipients of funds administered by DoE in 1994. It should be noted that it was anticipated that \$1 million would be available last year to develop a prototype system. DoE chose to divide the award in half, and the University of Miami competed with eight other applicants for the funds. We were successful in attracting one half or \$500,000.

Because this technology is an electric based technology, the local utility in Miami (Florida Power and Light Company) has also contributed to this research project. In fact, in the past three years FPL has contributed well over a half a million dollars to help develop this very promising technology.

Since the award was made at the end of last summer, the research team at Miami have been actively attempting to confirm proof of concept for this technology, because sufficient funds were not available to build a prototype system, smaller experiments were performed. The accomplishments to date are highlighted below:

1. The research team has determined the composition of typical biohazardous waste at Jackson Memorial Hospital by extensively evaluating the volume of medical supplies utilized on a monthly basis. Based on these data, the research team could determine what the probable composition of a typical biohazardous (red bag) would be (it is impossible to analyze actual hazardous waste material from the hospital due to health restrictions).
2. Based on the above information researchers fabricated biohazardous bags for testing.
3. Microorganisms which are surrogates for actual infectious organisms were cultured in the laboratory to be utilized in the red bag tests. These organisms included, bacteria, bacterial spores, fungi and viruses.
4. The UM researchers fabricated the biohazardous bags and transported them to an electron beam facility in Denver, Colorado. They also cultured microorganisms for testing and took those with them. Tests were run at an electron beam facility in Denver, to determine the dose delivered throughout the biohazardous bag, as well as inactivation of the test microorganisms. Results from these tests which have just been recently analyzed are very exciting, and indicate that this technology can easily sterilize all forms of organisms in the red bag. In fact, the data collected at the electron beam facility shows that the electron beam power required to disinfect these organisms is far less than anticipated. This means that the actual electron beam system will be far less costly than originally envisioned.
5. The researchers at the University have just purchased a prototype shredding machine, which will be utilized to shred entire biohazardous bags. Once the contents of the red bags have been sterilized, they can be shredded into an unrecognizable form. This machine will produce a material from red bags which looks like "confetti", and the material can then be easily and inexpensively disposed in a landfill.
6. Researchers have also initiated design of a prototype system that hopefully, will be installed at Jackson Memorial to demonstrate its operation on actual medical

waste. This design includes shielding requirements for the machine as well as waste conveyance systems, to safely present the biohazard bags to the electron beam.

The research ongoing at the University through its hospital, Jackson Memorial, is crucial for developing a technology which the medical community can use for disposal of its medical waste. Health care costs are skyrocketing and operational costs of hospitals is one of the main factors driving this cost increase. Hospitals have routinely indicated that disposal of their waste material, especially infectious medical waste, is a severe problem that is going to further exacerbate health care costs. In order to begin to control these costs, effective and inexpensive methods of handling medical waste must be developed. In addition, because of the increased incidence of infectious organisms in hospital waste, sterilization and ultimate disposal is very important. If this technology is successful and demonstrated at a commercial level, hospitals will immediately have a technology available which will render their infectious waste safe and easy to dispose of. There will be no emissions to the air from this process and all waste can be easily handled and safely disposed in a landfill.

Work to date has shown this process to be indeed very efficient, and in fact, the results recently obtained in Denver at a radiation facility are extremely positive. It now remains to build a prototype system at Jackson Memorial Hospital, where the actual processing of biohazardous waste can be achieved on a scale that will yield design data suitable for engineering a system. Because the components of this system are readily available on the commercial market, creating a full-scale system at a commercial level, will not be a difficult task.

PREPARED STATEMENT OF GEORGETOWN UNIVERSITY

Mr. Chairman and members of the committee, I am Rev. T. Byron Collins, S.J., and I am Rev. William L. George, S.J., Assistants to the President of Georgetown University. Thank you for the opportunity to testify on the commercialization of a Solid Waste - to - Total Energy Regeneration System.

The program request has been made to the Commerce Committee for the authorization to cover the specific elements of the commercialization program. We ask your support today for the necessary planning funds to make this project a reality. A planning

fund of \$780,000 is essential to allow for the inception of the Solid Waste - to - Total Energy Regeneration System and for the design concepts to be formulated accurately. This project offers an environmentally sound alternative to the bury and burn waste management techniques that are supported in the Presidential request for Non-Defense Environmental Restoration.

All future authorized funds will be privately matched in accordance with the appropriate Department of Energy formula in the authorization program.

Our program is to commercialize a total integrated energy system that uses non-toxic waste to produce electric power, heat, clean chilled water, oxygen, hydrogen, and methanol in an environmentally benign way. Under the leadership of Jet Propulsion Laboratory (JPL - California Institute of Technology), National Renewable Energy Laboratory (NREL), NASA and others, this project would be of special interest to colleges, universities, and hospitals in the United States.

The program involves an assembly of presently manufactured devices into an innovative array that metabolizes waste without incineration into environmentally safe elements including oxygen and hydrogen. This process delivers these gases to the Fuel Cell energy production unit creating heat, electricity, clean water and methanol. The program integrates the 300 KW photovoltaic national exemplar facility, as an essential for the electrolyzer process. The existing cryoquatic national exemplar will serve as a necessary energy production element for the system. This demonstrates the ability to commercialize the use of these existing technologies in the environmentally sound mitigation of waste and the production of energy, while producing useful elements such as oxygen and hydrogen.

PREPARED STATEMENT OF LOUIS W. SULLIVAN, PRESIDENT, THE MOREHOUSE SCHOOL OF MEDICINE

Mr. Chairman and Members of the Subcommittee, thank you for this opportunity to submit a statement for the record.

Our Nation's awareness of the need to expand primary care has become profound. To meet this need, however, we must increase the number of primary care physicians in this country, as well as develop a greater understanding of the social, educational, psychological, behavioral, economic and historical factors which contribute to diminished health status.

Less than 20 years ago, The Morehouse School of Medicine (MSM) was founded to recruit, educate and graduate more students from minority and socioeconomically disadvantaged backgrounds to serve as primary care physicians in underserved communities. As part of this mission, MSM seeks to expand basic biomedical research and clinical research, with particular emphasis on those problems, such as cancer, that disproportionately affect minorities and the poor.

Today, The Morehouse School of Medicine understands that it must reaffirm its mission to meet the new challenges of a changing health care system by expanding its capabilities to train more primary care physicians and to expand basic biomedical and clinical research, especially in the area of nuclear medicine. As such, it intends to combine its expertise and experience in primary care to establish the National Center for Primary Care.

THE NATIONAL CENTER FOR PRIMARY CARE

The National Center for Primary Care, which will be located on The Morehouse School of Medicine's campus, will further assist the School in carrying out its mission. The Center will be a national resource conducting, sponsoring and participating in academic, clinical, and health services research. Overall, the Center will house and, importantly, foster the integration of

several principal components of the School, including undergraduate, graduate and continuing medical education, research and outreach programs. The role of the Center is not only to strengthen the individual capacity of these various programs, but also to help blend these into an integrated, effectively functioning whole. In addition, partnerships formed by the School with rural and urban communities can help monitor and prioritize the needs of these communities and structure how these needs are to be met.

Specifically, the Center will accomplish the following goals:

- To increase significantly the number of primary care physicians.
- To build upon current health policy activities to form a national health and social policy center focused on identifying and analyzing the complex social, educational, psychological, behavioral, economic and historical factors which contribute to current problems of diminished health status, access and quality in the provision of both preventive and acute health care.
- To augment both outreach and community-based clinical networks with new and emerging communications technologies to form a solid base for its expanded research and health policy efforts.
- To expand current programs of basic biomedical and applied research as they relate to community-oriented health needs.
- To expand the current program of continuing medical education, including the capacity to use existing community television resources as a medium of instruction.
- To create a new set of collaborative linkages focused on medical education, health and social policy and the dissemination of basic and applied research, which will be supported by expanded on-site teleconferencing capabilities and computer support.

To achieve its mission, the Center will house the following components.

1. The Institute for Health and Social Policy: The purpose of the Center is to analyze important issues relating to the health of Americans. This is an exciting undertaking at a time when important issues such as what steps the Nation should take and precisely how we should allocate resources to preserve quality, promote access and contain costs are the subject of much debate by policy-makers.

The development of an analytical capacity to critically examine issues, policies and programs affecting the health and social well-being of citizens, is consistent with MSM's mission to improve the health status of all Americans, particularly poor and minority citizens.

The Center will focus on "health and social" issues rather than health-exclusive questions. The inclusion of other health-related factors is deliberate and recognizes the important direct relationship between health and socioeconomic status, including factors such as income, educational attainment, employment and occupation. Recent reports in the media and health literature have commented on this relationship. An article published in July of 1993 in *The New England Journal of Medicine* demonstrates that socioeconomic factors are strong predictors of health status. Among the article's more striking findings is that individuals with annual family incomes of \$9,000 or less in 1986 had a death rate of more than three times the rate of individuals with family incomes of \$25,000 or more. These differences can be traced to lifestyles. Individuals in higher socioeconomic classes may be more apt to eat healthier diets, engage in exercise, live in neighborhoods where violence is less common, and work in jobs less prone to occupational injuries and diseases.

One important element which helps to distinguish MSM is the emphasis the School places on cultural, socioeconomic, ethical, occupational, environmental, and behavioral factors and the role they play in contributing to health and illness, with special attention to the family.

The work of the Institute will be divided into four principal activities:

- **Critical Analysis:** Performing research and analysis on current issues of importance to policy makers, academicians, practitioners, students and others.
- **Forums:** Sponsoring and conducting conferences, colloquia and seminars which bring together a broad range of students, researchers and observers of health and social policy.
- **Linkages:** Establishing linkages with national, state and local policy makers, policy agencies, foundations and corporations.
- **Communications:** Translating and disseminating research findings, publishing conference proceedings, and periodic informational notes regarding recent developments in the field of health and social policy to practicing physicians, policy experts and legislators.

2. Research: One of the most important activities within the School is the conduct of research. As a result of the talent and dedication of its faculty, the School has been very successful in competing for research projects and funds. Although, MSM is less than 20 years old, its faculty successfully competed for more research funding than one-third of all of the medical schools in the country, all but two of which are older than MSM. At the present, the School's buildings are at capacity, creating a shortage of the space needed to expand research.

Accordingly, because of the singular importance of this activity, the Center will include substantial space to accommodate new and expanded research. The School expects to increase its research base substantially over the next decade, working in cooperation with the National Institutes of Health, the National Science Foundation and other governmental and private organizations. Prominent among major research supported by the School will be research projects in Pharmacology and Toxicology.

3. Conference Center: A critical component of the Center is the proposed Conference Center. Presently, MSM's campus does not contain a sufficient auditorium/conference center capability to accommodate large seminars, forums, or classes in continuing medical education. This need is emphasized as the School proceeds with plans to increase its current class size from approximately 35 students to 64 students per class, expand the new Ph.D. program in the biomedical sciences, further establish the Morehouse School of Medicine as a center of excellence for medical instruction, biomedical research and continuing medical education, and develop residency programs in pediatrics, obstetrics and gynecology. The Center will also provide space for an instructional computer/medical translation facility and conference space to accommodate small meetings.

4. Ambulatory Care: The Center will also provide space to consolidate clinical ambulatory care activity. Presently, the School's faculty practice plan, Morehouse Medical Associates (MMA), operates out of a facility several miles away from the medical school. Not only will co-locating MMA with the School substantially increase the efficiency of the plan, but it will also provide important additional ambulatory care training opportunities for students.

THE FOUNDATIONS OF THE CENTER

Many of the building blocks to establish a National Center for Primary Care are already present within The Morehouse School of Medicine. These include:

- An outstanding program of medical education, and recognition as the national leader in the percentage of graduates entering primary care specialties.
- A fundamental understanding of the complexities and challenges involved in the provision of primary care services to individuals and families in low-income urban neighborhoods and rural communities, through its current multi-site, community clinical program.
- A long-standing and solid base of trust within underserved communities in which MSM already operates an extensive outreach network.
- An excellent program of basic and applied research with an increasing emphasis on community-based research related to the environmental, economic and social factors affecting health status.
- A nationally recognized program of continuing medical education.
- A demonstrated track record of leadership and commitment.

With these building blocks in place, the remaining element needed to create the new Center is additional space to carry out expanded clinical, health policy, community-based research and community and professional collaboration.

The Morehouse School of Medicine has made great strides in the area of primary care and will continue to do so. We believe that the establishment of the Center, through its research and programs, will make significant in-roads into the important issues relating to the health of Americans, particularly minorities.

The Morehouse School of Medicine has gained bipartisan support in Congress for its proposal in the belief that the Center will produce benefits for all Americans.

Given the importance of the Center and its mission, The Morehouse School of Medicine is seeking Federal assistance for this initiative in Fiscal Year 1996 in the sum of \$20,000,000.

Mr. Chairman, thank you for providing the opportunity to present this statement, and for the Subcommittee's consideration of this request.

LIST OF WITNESSES, COMMUNICATIONS, AND PREPARED STATEMENTS

	Page
Airoldi, Alan, mayor, town of Corte Madera, CA, prepared statements ...	1073, 1134
Allen, E.D., chief harbor engineer for the Port of Long Beach, prepared statement	1003
American Public Power Association, prepared statement	1195
American Society of Mechanical Engineers, prepared statement	1189
Anderson, Don, Anderson Orchard Services, Hamilton City, CA, letter from	1043
Arkansas Basin Development Association, Inc., prepared statement	881
Armstrong, Michael D., general manager, Monterey County Water Resources Agency, prepared statement	1106
Assiniboine and Sioux Tribes, Fort Peck Reservation, MT, prepared statement	849
Associated Gas Distributors, prepared statement	1169
Atwater, Richard W., general manager, West Basin Municipal Water District, prepared statement	1122
Baker, Kenneth E., Acting Director, Office of Nonproliferation and National Security, Department of Energy	1
Biographical sketch	26
Prepared statement	23
Barnett, Jack A., executive director, Colorado River Basin Salinity Control Forum, prepared statement	929
Battisti, Paul, supervisor, NAPA County Flood Control and Water Conservation District, prepared statement	1069
Bayne, Phillip, president and chief executive officer, Nuclear Energy Institute, prepared statement	1185
Beard, Daniel P., Commissioner, Bureau of Reclamation, Department of the Interior	503
Prepared statement	504
Beck, David P., Ph.D., president, Coriell Institute, prepared statement	1210
Bennett, Hon. Robert F., U.S. Senator from Utah, questions submitted by	491
Bishop, Ron, general manager, Central Platte Natural Resources District, prepared statement	808
Bletsch, Iris Z., chairman, board of directors, Clark County Regional Flood Control District, prepared statement	936
Blum, Carl L., deputy director, department of public works, Los Angeles County, CA, prepared statement	1082
Boggs, Hon. Diane, councilmember, city of Downey, CA, prepared statement ..	1085
Bowles, Liza K., president, NAHB Research Center, prepared statement	1190
Boyd Detention Dam on the Trinity River in Wise County, TX, prepared statements	894
Branch, Hon. Linwood O., III, councilman, city of Virginia Beach, VA, prepared statement	665
Bransford, Don, president, Glenn-Colusa Irrigation District, prepared statement	1044
Brescia, Christopher J., president, Midwest Area River Coalition 2000, prepared statement	797
Briscoe, Keith G., president, Buena Vista College, Storm Lake, IA, prepared statement	841
Brudin, John B., general manager, Eastern Municipal Water District, prepared statement	1112
Bumpers, Hon. Dale, U.S. Senator from Arkansas, prepared statement	417
Burch, Leonard C., chairman, Southern Ute Indian Tribe, prepared statement	931

	Page
Burns, Hon. Conrad, U.S. Senator from Montana:	
Prepared statement	396
Questions submitted by	258, 491, 559
Byrd, Hon. Robert C., U.S. Senator from West Virginia, questions submitted by	493
Byrd, Lee, city of Rancho Palos Verdes, prepared statement	972
Callahan, Hon. Sonny, U.S. Congressman from Alabama, prepared state- ment	680
Campbell, Joseph L., president, Contra Costa Water District, letter from	1133
Carrasco, Jorge, general manager, East Bay Municipal Utility District, pre- pared statement	1141
Central Valley Project Restoration Fund Roundtable, prepared statement	1100
City of Stockton, San Joaquin County, CA, prepared statements	1049, 1138
Cline, Neil M., general manager, Santa Ana Watershed Project Authority, prepared statement	1114
Cluff, Don B., Chief, Programs Management Division, Directorate of Civil Works, Corps of Engineers—Civil, Department of the Army, Department of Defense—Civil	371
Creswell, Robert M., former resource manager for the Corps of Engineers on the Alabama River, letter from	688
Crook, James, manager, Kaweah Delta Water Conservation District, prepared statements	1061, 1152
Danza, James M., chair, technical advisory board, Friends of the Los Angeles River, letter from	1158
DeKozlowski, Steven J., president, Aquatic Plant Management Society, pre- pared statement	785
Devereux, Paul, director of engineering, Sacramento Area Flood Control Agency, prepared statement	1045
Domenici, Hon. Pete V., U.S. Senator from New Mexico:	
Prepared statement	2
Questions submitted by	51, 206, 419, 518
Dowdy, Larry D., Little River Drainage District, Cape Girardeau, MO, pre- pared statement	721
Duncan, Angus, chairman, Northwest Power Planning Council, prepared statement	939
Edgar, Gov. Jim, Springfield, IL, prepared statement	791
Edwards, Gov. Edwin W., Baton Rouge, LA, prepared statement	761
Elsinore Valley Municipal Water District, Lake Elsinore, CA, prepared state- ment	1115
Engel, Hon. Pat, senator from Nebraska State Legislature, letter from	828
Eno, Amos S., executive director, National Fish and Wildlife Foundation, prepared statements	850, 964
Everett, Jeffrey J., manager, Sites Planning Department, Sandia National Laboratories	266
Farrel, David, Acting Chief, Office of Federal Activities, U.S. Environmental Protection Agency, letter from	1160
Felty, Billy J., chief engineer, St. Francis Levee District, Arkansas, prepared statement	723
Foss, Brian E., port director, Santa Cruz Port District, prepared statement	992
Foster, Charles W., executive director, Port of Oakland, prepared statement ...	1014
Fuller, Thomas S., Metropolitan Water Reclamation District of Greater Chi- cago, prepared statement	793
Gammage, Grady, Jr., president, Central Arizona Water Conservation Dis- trict, prepared statement	875
Gardner, Hon. Garth, councilmember, city of Pico Rivera, CA, prepared state- ment	1081
Genega, Maj. Gen. Stanley G., Director of Civil Works, Corps of Engineers— Civil, Department of the Army, Department of Defense—Civil	371
General Atomics, San Diego, CA, prepared statement	1206
Georgetown University, prepared statement	1221
Geringer, Gov. Jim, Cheyenne, WY, letter from	970
Goldsworth, Robert, director, Water Replenishment District of Southern Cali- fornia, prepared statement	1131

	Page
Guluzzy, Donald F., general manager, San Mateo County Harbor District, prepared statement	981
Gunter, Gurnie, president, MO-ARK Association, prepared statement	801
Hagemann, Maj. Gen. Kenneth L., U.S. Air Force, Director, Defense Nuclear Agency, Department of Defense	293
Biographical sketch	295
Prepared statement	294
Hall, Vernon E., chief harbor engineer, city of Los Angeles Harbor Department, prepared statement	1012
Harmon, Jerry C., councilmember, city of Escondido, CA, prepared statement	1129
Hatfield, Hon. Mark O., U.S. Senator from Oregon, questions submitted by	91, 450, 551
Hayden, Channing, president, New Orleans Steamship Association, prepared statement	769
Hayden, Tom, chairman, senate committee on natural resources and wildlife, Sacramento, CA, letter from	1161
Heflin, Hon. Howell, U.S. Senator from Alabama, prepared statements:	
Funds for the Alabama Waterway projects	672
Funds for the Coosa-Alabama Waterway	678
Funds for the Tennessee-Tombigbee Waterway	677
Funds for the Warrior-Tombigbee Waterway	676
TVA's Environmental Research Center	674
Herenton, Hon. W.W., mayor, city of Memphis, TN, prepared statement	782
Holzbauer, Leo, executive director, Lake Andes-Wagner Water Systems, Inc., prepared statement	814
Huffman, Donald C., vice president, Missouri-Arkansas River Basin Association, prepared statement	823
Hughes, Donald E., president, Twin Loups Reclamation District, prepared statement	810
Humboldt Bay Harbor Recreation and Conservation District, prepared statement	978
Inhofe, Hon. James, U.S. Senator from Oklahoma, questions submitted by	500
Israel, Keith, general manager, Monterey Regional Water Pollution Control Agency, prepared statement	1105
Ives, Paul Lane, Jr., chairman, Joint Executive Committee for the Improvement and Development of the Philadelphia Port Area, prepared statement ..	661
James, Hon. Sharpe, mayor of Newark, NJ, prepared statement	668
Johnck, Ellen, executive director, Bay Planning Coalition, prepared statement	1144
Johnson, Sally, mayor pro tem, city of Kansas City, MO, prepared statement	802
Johnson, Trixie, vice-mayor, city of San Jose, CA, prepared statement	1109
Johnston, Hon. J. Bennett, U.S. Senator from Louisiana, questions submitted by	491
Johnston, Ronald, Program Director, Central Utah Project, Bureau of Reclamation, Department of the Interior	503
Prepared statement	507
Jones, Jan, executive director, Tennessee River Valley Association, prepared statement	774
Kamei, Rosemary C., chair/board of directors, Santa Clara Valley Water District, prepared statement	1074
Kerrey, Hon. J. Robert, U.S. Senator from Nebraska, questions submitted by	569
Kimble, Jay B., mayor, city of Stillwater, MN, prepared statement	843
Kimel, Kris W., president, Kentucky Science and Technology Council, Inc., prepared statement	1193
Klass, Donald L., president, Biomass Energy Research Association, prepared statement	1171
Knight, F.E., president, Port of Nehalem, Wheeler, OR, letter from	952
Kornegay, H.T., executive director, Port of Houston Authority, prepared statement	869

	Page
Krebs, Dr. Martha A., Director, Office of Energy Research, Department of Energy	95
Biographical sketch	151
Prepared statement	104
Krygman, Alexander, port director, Port of Stockton, CA, prepared statement	991
Lopez, Donald T., P.E., New Mexico Interstate Stream Commission, prepared statement	930
Lopez, Gaye, secretary/administrator, Colusa Basin Drainage District, prepared statement	1099
Luongo, Kenneth N., Director, Office of Arms Control and Nonproliferation, Department of Energy	1
Lyon, Dick, mayor, Oceanside, CA, prepared statements	973, 974
Mandenhall, Penny, port manager, Port of Toledo, OR, prepared statement	944
Maritime Advisory Council, New Jersey Department of Commerce and Economic Development	572
Martin, William R., chairman, Nuclear Engineering Department Heads Organization, prepared statement	1198
Martinson, Donald J., executive director, Santa Ana River Flood Protection Agency, prepared statement	1089
McCovey, Pliny, Sr., vice chairman, Hoopa Valley Tribe of California, prepared statement	1156
McCrory, Robert L., professor and director, University of Rochester, prepared statement	1164
McKenzie, J. Thomas, president, Coosa-Alabama River Improvement Association, Inc	681
Mendez, John J., assistant city administrator, city of Kansas City, KS, prepared statement	804
Mikulski, Hon. Barbara A., U.S. Senator from Maryland, questions submitted by	498
Mills, William R., Jr., general manager, Orange County Water District, prepared statement	1126
Mirin, Steven M., chief executive officer, McLean Hospital, Belmont, MA, prepared statement	1180
Mni Wiconi Project, South Dakota, prepared statement	820
Narath, Al, president, Sandia National Laboratories	266
Nichols, Offa S., Jr., president, Warrior-Tombigbee Development Association, prepared statement	695
Noble, Hon. Vernon A., chairman, Green Brook Flood Control Commission, prepared statement	663
Novak, Cathy, councilmember, city of Morro Bay, CA, prepared statement	1016
Palmer, Gary, chairman of the board, Central Utah Water Conservancy District, prepared statement	919
Palmer, R. Barry, executive director, Association for the Development of Inland Navigation in America's Ohio Valley, prepared statement	778
Parson, Richard W., general manager, Ventura Port District, prepared statement	997
Peter, John P., president and chief operating officer, KidsPeace National Centers for Kids in Crisis, prepared statement	669
Peterson, J.M., president, Missouri River Bank Stabilization Association, prepared statement	827
Peterson, R. Max, executive vice-president, International Association of Fish and Wildlife Agencies, prepared statement	967
Pfeifle, Kurt, manager, Mid-Dakota Rural Water System, prepared statement	816
Port of Brooking Harbor, Curry County, OR, prepared statement	953
Poundstone, Emery, Reclamation District No. 108, prepared statement	1104
Powers, Michael R., port director, Port of Richmond, CA, prepared statement	974
Pringle, Gail L., president of the board of directors, Channel Islands Beach Community Services District, prepared statement	1135
Public Utility District No. 1 of Douglas County, East Wenatchee, WA, letters from	957

	Page
Quan, Michael, PE, department of public works, San Francisco, CA, prepared statement	1107
Rail, David L., councilmember, city of Provo, UT, prepared statement	926
Reid, Hon. Harry, U.S. Senator from Nevada, questions submitted by	93
Reis, Victor H., Assistant Secretary for Defense Programs, Department of Energy	1, 261
Biographical sketch	13
Prepared statement	5, 265
Robb, John, chairman, Upper Mississippi Flood Control Association, prepared statement	829
Rogers, Ross, general manager, Merced Irrigation District, prepared statement	1059
Rumbaugh, Allan, general manager, Oregon International Port of Coos Bay, prepared statement	954
Sanford, Tom, deputy mayor, city of Gridley, CA, prepared statement	1174
Sanguinetti, Phillip A., letter from	687
Sauthoff, Ned, chairman, Energy Policy Committee, Institute of Electrical and Electronics Engineers, prepared statement	1167
Schafer, Richard L., secretary, Watermaster Tule River Association, prepared statement	1063
Scheeler, Thomas, assistant director of engineering, Port of Sacramento, prepared statement	972
Schellpeper, Hon. Stan, senator from the Nebraska State Legislature, letter from	828
Schiff, Hon. Steven, U.S. Congressman from New Mexico	261
Schrader, William P., president, Salt River Project, prepared statement	933
Shelby, Hon. Richard C., U.S. Senator from Alabama, prepared statement	671
Shell, Mary K., supervisor, fifth district in Kern County, CA, prepared statement	1068
Smith, Harold P., Jr., Assistant to the Secretary of Defense for Atomic Energy, Department of Defense	1
Biographical sketch	19
Prepared statement	17
South Dakota Department of Environment and Natural Resources, prepared statement	811
Spence, Cynthia, associated dean for academic affairs, Spelman College, prepared statement	1181
Sprynczynatyk, David A., State engineer, North Dakota State Water Commission, prepared statement	835
Stearns, Michael, member, Reclamation Board, State of California, prepared statement	1036
Steffani, Edward M., general manager, Stockton East Water District, prepared statement	1057
Strand, Robert, chairman, Garrison Diversion Conservancy District, prepared statement	832
Sullivan, Louis W., president, Morehouse School of Medicine, prepared statement	1222
Svendson, Doug W., Jr., executive director, Gulf Intracoastal Canal Association, prepared statement	872
Symington, Gov. Fife, the State of Arizona, prepared statement	877
Tavaglione, John, chairman, Riverside County Flood Control and Water Conservation District, prepared statement	1097
Tennis, Audrey Z., chair, California Water Commission, prepared statement ..	1018
Ternyik, Wilbur E., commission president, Port of Siuslaw, OR, prepared statement	950
Trinity Improvement Association, prepared statement	853
Thorne, Mike, executive director, Port of Portland, prepared statement	945
Tinsley, Thomas J., public works director, Glenn County Public Works Department, letter from	1043
Twining, Bruce, manager, Albuquerque Operations Office, Kirtland AFB, NM, Department of Energy	261
Turoci, Marsha, chairman, first district, county of San Bernadino, CA, letter from	1089
University of Miami, prepared statement	1219

	Page
Upper Mississippi River Basin Association, prepared statement	838
U.S. Army Corps of Engineers Aquatic Plant Program at the University of Miami, prepared statement	788
Vanselow, Glenn, Ph.D., executive director, Pacific Northwest Waterways As- sociation, prepared statement	960
Ventura County and Ventura County Flood Control District, prepared state- ment	1080
Voth, Marcus H., director, radiation science and engineering center, Penn- sylvania State University, prepared statement	1215
Waldon, Donald G., administrator, Tennessee-Tombigbee Waterway Develop- ment Authority, prepared statement	773
Wehe, David K., professor, University of Michigan, prepared statement	1177
Weiland, Kenneth L., P.E., CEO and chief engineer, Yazoo-Mississippi Delta Levee Board, prepared statement	724
Werner, Carol, director, Energy and Climate Program, Environmental and Energy Study Institute, letter from	1212
Williams, Lt. Gen. Arthur, Chief of Engineers, Corps of Engineers—Civil, Department of the Army, Department of Defense—Civil	371
Prepared statement	386
Williams, M.V., Lower Mississippi Valley Flood Control Association, prepared statement	718
Wilson, Peter K., assistant city administrator, city of Santa Barbara, prepared statement	998
Wisniewski, Stan, director, county of Los Angeles, Department of Beaches and Harbors, letter from	1000
Wolter, John, cooperative projects engineer, city of Newport Beach, CA, pre- pared statement	1017
Wright, Phillip Michael, president, Geothermal Energy Association, prepared statement	1202
Yurek, Gregory, president and CEO, American Superconductor Corp., pre- pared statement	1214
Zaun, William L., director of public works, Orange County Flood Control District, prepared statement	1085
Zirschky, John H., Acting Assistant Secretary of the Army for Civil Works, Corps of Engineers—Civil, Department of the Army, Department of De- fense—Civil	371
Prepared statement	374

SUBJECT INDEX

DEPARTMENT OF ENERGY

	Page
Comprehensive Test Ban Treaty	21
Counterproliferation	42
Defense programs:	
Budget request	31
Overview	3
Dismantlement	45
Schedule	48
Emergency response	22
Experiments, laboratory	30
Facilities, test range in Nevada	31
Facility:	
Dual-axis radiological hydrodynamic test [DARHT]	33, 39
National ignition	4, 32, 35
Funding:	
Nunn-Lugar	26
Transfer to Department of Energy	27
Out-year	35
Galvin report and the Department of Energy labs	48
Initiative:	
Accelerated strategic computing	4, 33
Declassification	22
Kirtland Air Force Base, closing of	49
Laboratories, focus at	41
Launch, accidental	46
Los Alamos Neutron Scattering Center	4
Material protection, control, and accountability activities [MPC&A], expansion of Department of Energy's role in the	27, 41
Nonproliferation:	
Efforts	21
Program expansion	21
Nuclear:	
Deterrence	3
Posture review	15
Weapons Council	15
Plan, 2010 strategic	31
Profile, nuclear weapons rebuilding	34
Project Sapphire	27
Relationship, Department of Energy and Department of Defense:	
Between the	14
Importance of	36
Russia, visit to	46
Russian-United States Labs-to-Labs Program	20
Safeguards and security	22
Security:	
In Russia:	
Nuclear materials	40
Weapons	39
Soviet nuclear materials	39
Stockpile:	
Stewardship, science-based	3
Certification of	37
Confidence in	16

	Page
Testing	29
Hydronuclear	30
Underground	36
Tritium:	
Production	16
Programmatic environmental impact statement	38
Requirements	38
Supply	4, 37
Weapons:	
Aimed at United States	44
Chemical and biological	43
Dismantlement and plutonium pit storage	45
Reduction	3
"60 Minutes":	
Nuclear submarines	44
Report on Soviet weapons situation	44

OFFICE OF ENERGY RESEARCH

Budget priorities	198
Drell report	203
Facilities, user	194
Federal agencies, coordination between	97
Fusion energy	102
Fusion Energy Program	194
Galvin report	153
Global climate change	204
Human Genome Program	102, 203
Los Alamos Neutron Scattering Center	205
Mission, Department of Energy	99
Optical reflector, nonimaging	101
Physics, high energy	197
President's Council of Advisors on Science and Technology	196
Rescission, fiscal year 1995	96, 99, 201
Research:	
Basic	152
Coal	199
Spallation neutron source	202
Technology, accelerator	200
Wind tunnel work with NASA	199
Cooperative research and development agreements	154

KIRTLAND AFB, NM, REALIGNMENT

Accident response group	277
Albuquerque Operations Office, role of	276
Announcement, realignment	285
Cantonment	278
Department of Energy	282
Others	284
Closure:	
Impact of Kirtland on Sandia	275
Kirtland Air Force Base	265
Proposed—decision level	286
Cost impacts	277
Costs, recurring	279
Defense Nuclear Agency	262
Estimates:	
Air Force cost	262
Cost	279, 282,
Coordination on	285
Security cost	284
Facilities, Department of Energy/Sandia	270
Infrastructure, laboratory	266
Land:	
Parcels	267
Usable	286
Ordnance, unexploded	270, 283

	Page
Public relations—nuclear weapons program	288
Remediation, environmental	268
Responsibilities, Air Force	279
Sandia National Lab-core missions	266
Security	283
Site, cable	273
Statements, Department of Defense on Department of Energy at Kirtland	287
Stockpile stewardship	264
United Kingdom, program with	277, 285
Video	275
Zones, hazard	269

DEPARTMENT OF DEFENSE

DEFENSE NUCLEAR AGENCY

Costs, realignment	299
Defense Nuclear Agency field command status	296
Estimate, integrated cost	368
Functions, splitting command	297

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

Authority, emergency	405
Baker Dam Reservoir	405
Bank erosion—Fort Peck Dam	410
Budget:	
Execution, 1995	372
Request, fiscal year 1996	373, 384
Carlsbad, NM, city of	412
Continuing authorities program	413
Endangered Species Act issues	407
Environmental project	414
Emergency, declaration of a state of	406
Fish and Wildlife Coordination Act	399
Flooding, Washington County, UT	404
Goals for fiscal year 1996	373
Lake Ponchartrain and vicinity storm water discharge	398
Management program	385
Mission Review report	402
Missouri River master plan	416
Nationally significant project	401
New flood policy:	
Control	400, 414
Protection	398
Performance improvement	385
Performance program	372
Public Law 84-99	406
Chloride control project	399
Red River Waterway, LA	397
Chloride control project	399
Ritchie County, WV	403
Southeast Federal center	411
Water resource development, Federal participation in	401
Water supply system	410
Wetlands	372
Delineation	408

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

Bureau of Reclamation's future	510
Central Utah project	507



x

3 9999 05570 781 2

Page

Dams, safety of issue	509
Development phase ending	511
District water conservation plans	512
Flathead Indian irrigation project	515
Guidelines, acreage and conservation	512
Middle Rio Grande Conservancy District	513
Montana irrigation systems	514
Projects need repairs	515
Renewals, water supply contract	508



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